

**Economically-Challenged Programs
An Illinois Review and Recommendation by
the Illinois Energy Efficiency Stakeholder Advisory Group**

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Section 1: Executive Summary

A. Background

From September 2015 to September 2016, the Illinois Energy Efficiency Stakeholder Advisory Group (“IL EE SAG”) engaged in a Portfolio Planning Process with utilities, the Illinois Department of Commerce and Economic Opportunity (“Department”), and stakeholders on the fourth 3-year energy efficiency portfolio filings for electric program administrators (Ameren IL, ComEd, and the Department) and the third 3-year plan filings for gas program administrators (Nicor Gas, Peoples Gas-North Shore Gas, and the Department). Low income and public sector utility customers have been served through energy efficiency programs by the Department since the passage of Section 8-103 of the Public Utilities Act in 2008. During the planning process, stakeholders proposed that utilities provide additional funding for low income customers, referred to as economically-challenged, which includes both low income and low-moderate income customers, and identified the need for an economically-challenged advisory subcommittee of the IL EE SAG to ensure the success of these programs and coordination with the Department.

In December 2016, the Future Energy Jobs Bill (“FEJA”), Senate Bill 2814, was enacted into law, nullifying the filed energy efficiency plans. A subsequent planning process for new four-year portfolio plans began in January 2017 by utilities and the IL EE SAG. New portfolios plans will begin on January 1, 2018. FEJA shifts the responsibility for serving economically-challenged customers from the Department to utilities and mandates the creation of an economically-challenged advisory committee to assist in the design and evaluation of economically-challenged programs.¹ The IL EE SAG has been asked, at the request of the electric utilities responsible for convening the committee, to convene and lead the economically-challenged advisory committee as a subcommittee of the IL EE SAG.² The committee, known as the Economically Disadvantaged Energy Efficiency Stakeholder Advisory Committee, held its first meeting in April 2017.

The objective for this research project is to complete best practice research on economically-challenged programs, identify successful initiatives from other jurisdictions and provide support and education to the IL EE SAG to help the inform the economically-challenged advisory committee and ensure a level playing field for all IL EE SAG participants. Completing best practice research and analysis on economically-challenged programs assists with educating, building awareness and support for efficiency in the broad Illinois energy efficiency stakeholder community and beyond, and also helps “level the playing field” so that all stakeholders start with a common base of knowledge and are not disadvantaged by not having the resources that the utilities have to participate.

B. Research Approach

The research approach for this Economically-Challenged Report included two areas of focus: a literature search and review of leading programs. For the literature search, numerous reports were reviewed that analyze economically-challenged program design, barriers to participation and opportunities for improvement. A complete list of the reports reviewed is provided in the References section.

For the program review, leading economically-challenged programs were reviewed to identify and analyze programs that are the most notable. An initial literature review was conducted to identify

¹ See Public Utilities Act (220 ILCS 5/8-103B; 220 ILCS 5/8-104).

² See Public Utilities Act (220 ILCS 5/8-103B(c)).

program characteristics that Illinois utilities should take into account for the next four-year plans. There is a large amount of data on economically-challenged energy efficiency programs in other jurisdictions, ranging from single-family and multi-family incentives, direct install, educational, “whole home”, financing, and more. A complete list of the programs reviewed is available in Section 3, Profile of Notable Programs.

In addition to a literature search and review of leading programs, the recommendations in this report have been informed and guided by initial comments, feedback and recommendations of participants in the Economically Disadvantaged Energy Efficiency Stakeholder Advisory Committee. Ultimately, the implementation of programs serving economically-disadvantaged communities needs to be guided by the communities themselves, and those who serve and represent them. The Economically Disadvantaged Energy Efficiency Stakeholder Advisory Committee is intended to be the vehicle for ensuring this representation.

C. Findings and Recommendations

This report describes how economically-challenged customers differ (building stock, customer characteristics), program design considerations specific to economically-challenged customer segments, key recommendations for economically-challenged program implementation in Illinois, and emerging trends from successful programs. Key findings and recommendations on economically-challenged energy efficiency programs will be reviewed and enhanced by the Economically Disadvantaged Energy Efficiency Stakeholder Advisory Committee.

Section 2: Economically-Challenged Overview

For purposes of this Economically-Challenged Report and for consideration in developing segment-specific offers for income qualified customers in Illinois, Section 2 provides an overview of economically-challenged characteristics. This section includes definitions for income ranges, an overview of Illinois statutory requirements and historical economically-challenged energy efficiency programs, an overview of multi-family affordable housing, and Illinois data on low and moderate income customers.

A. Definitions

The following definitions provide income ranges for various customer segments:

1. **Extremely Low Income Customers:** Do not exceed the higher of³ poverty level (100%), or 30% of Area Median Income (“AMI”).
2. **Very Low Income Customers:** Less than 50% of AMI.⁴
3. **Low Income Customers:** As defined by Illinois legislation,⁵ at or below 80% of AMI; or at or below 150% of the federal poverty level.
4. **Low-to-Moderate Income:** Above 80% and below 120% of AMI⁶ or 151 to 300% of the federal poverty level.⁷
 - a. Note: Moderate income is defined by the U.S. Department of Housing and Urban Development (“HUD”) as 81-95% of AMI.⁸

The U.S. Department of Housing and Urban Development defines the customer segments for the Chicago and Springfield areas of Illinois as no more than the following salaries⁹:

Table 1: Health and Safety Spending Limits		
	Chicago Metro – Family of Four	Springfield, IL – Family of Four
Extremely Low Income¹⁰	\$24,600	\$24,600
Very Low Income	\$39,500	\$37,750
Low Income	80% AMI: \$63,200 150% of Poverty: \$36,900	80% AMI: \$60,400 150% of Poverty: \$36,900
Low-to-Moderate Income	120% AMI: \$94,800 300% of Poverty: \$73,800	120% AMI: \$90,600 300% of Poverty: \$73,800

³ See <https://portal.hud.gov/hudportal/documents/huddoc?id=16-09hsgn.pdf>.

⁴ See https://www.huduser.gov/portal/glossary/glossary_all.html.

⁵ See Illinois Senate Bill 2814, 8-103B and 8-104.

⁶ See (310 ILCS 65/) Illinois Affordable Housing Act.

⁷ Previously defined by the Illinois Energy Efficiency Stakeholder Advisory Group.

⁸ See https://www.huduser.gov/portal/glossary/glossary_all.html.

⁹ See HUD FY 2017 Income Limits Documentation System for the Chicago-Joliet-Naperville geographic area: https://www.huduser.gov/portal/datasets/il/il2017/select_Geography.odn.

¹⁰ HUD adjusts the extremely low income amount, based on AMI, as noted on <https://www.huduser.gov>, “The preliminary 30 percent income limits, therefore, are calculated as 30/50ths (60 percent) of the Section 8 very low-income limits.”

B. Illinois Statutory Requirements

There are three key requirements for economically-challenged energy efficiency programs in Illinois as identified in the Future Energy Jobs Act:

1. **Economically-challenged household definitions:** Economically-challenged households, referred to in the Future Energy Jobs Act as “low income,” are defined as at or below 80% of area median income for electric and gas utilities. To establish the economically-challenged program budget, gas utilities are to consider economically-challenged households at or below 150 percent of the poverty level.¹¹
2. **Utility budgets for economically-challenged programs:** Electric and gas utility budgets for economically-challenged energy efficiency programs including minimum spending requirements:
 - a. Ameren Illinois: \$3,000,000 per year
 - b. ComEd: \$25,000,000 per year
 - c. Nicor Gas, Peoples Gas and North Shore Gas: Proportionate to the share of total annual utility revenues in Illinois from economically-challenged households.¹²
3. **Electric utility requirements:**
 - a. Assess opportunities to implement cost-effective EE measures and programs through a public housing authority or authorities; develop and implement reporting procedures that address and assist in determining the amount of energy savings that can be applied to the economically-challenged procurement and expenditure requirements; and convene a economically-challenged energy efficiency advisory committee to assist in the design and evaluation of economically-challenged programs. The committee shall include the electric utilities, gas utilities, implementation contractors and representatives of community-based organizations.
 - b. Electric utilities shall prioritize economically-challenged residential customers to the extent practicable should the electric utility choose to continue a program offered jointly with a gas customer, in the event the gas utility discontinues funding the program.¹³

Statutory language on economically-challenged energy efficiency programs can be found in five sections of FEJA (language has been excerpted):

1. **Electric Utility Budget Requirements – 8-103(B)(c):**
 - a. The utilities shall also implement energy efficiency measures targeted at low-income households, which, for purposes of this Section, shall be defined as households at or below 80% of area median income, and expenditures to implement the measures shall be no less than \$25,000,000 per year for electric utilities that serve more than 3,000,000 retail customers in the State and no less than \$8,350,000 per year for electric utilities that serve less than 3,000,000 retail customers but more than 500,000 retail customers in the State.
2. **Gas Utility Budget Requirements – 8-104(e-5):**
 - a. The utilities shall also present a portfolio of energy efficiency measures proportionate to the share of total annual utility revenues in Illinois from households at or below 150% of the poverty level. Such programs shall be targeted to households with incomes at or below 80% of area median income.

¹¹ See Public Utilities Act (220 ILCS 5/8-104 (e-5)).

¹² See Public Utilities Act (220 ILCS 5/8-104(e-5)).

¹³ See Public Utilities Act (220 ILCS 5/8-103B (b-25)).

3. Electric Utility Legislation – 8-103(B)(c):

- a. Each electric utility shall assess opportunities to implement cost-effective energy efficiency measures and programs through a public housing authority or authorities located in its service territory. If such opportunities are identified, the utility shall propose such measures and programs to address the opportunities. Expenditures to address such opportunities shall be credited toward the minimum procurement and expenditure requirements set forth in this subsection (c).
- b. Implementation of energy efficiency measures and programs targeted at low-income households should be contracted, when it is practicable, to independent third parties that have demonstrated capabilities to serve such households, with a preference for not-for-profit entities and government agencies that have existing relationships with or experience serving low-income communities in the State.
- c. Each electric utility shall develop and implement reporting procedures that address and assist in determining the amount of energy savings that can be applied to the low-income procurement and expenditure requirements set forth in this subsection (c).
- d. The electric utilities shall also convene a low-income energy efficiency advisory committee to assist in the design and evaluation of the low-income energy efficiency programs. The committee shall be comprised of the electric utilities subject to the requirements of this Section, the gas utilities subject to the requirements of Section 8-104 of this Act, the utilities' low-income energy efficiency implementation contractors, and representatives of community-based organizations.

4. Electric utility prioritization in counting gas savings:

- a. **8-103(B)(b-25)** In the event an electric utility jointly offers an energy efficiency measure or program with a gas utility under plans approved under this Section and Section 8-104 of this Act, the electric utility may continue offering the program, including the gas energy efficiency measures, in the event the gas utility discontinues funding the program. In that event, the energy savings value associated with such other fuels shall be converted to electric energy savings on an equivalent Btu basis for the premises. However, the electric utility shall prioritize programs for low-income residential customers to the extent practicable. An electric utility may recover the costs of offering the gas energy efficiency measures under this subsection (b-25).

5. Electric utility plan measure lives:

- a. **8-103(B)(j)** The independent evaluator shall follow the guidelines and use the savings set forth in Commission-approved energy efficiency policy manuals and technical reference manuals, as each may be updated from time to time. Until such time as measure life values for energy efficiency measures implemented for low-income households under subsection (c) of this Section are incorporated into such Commission-approved manuals, the low-income measures shall have the same measure life values that are established for same measures implemented in households that are not low-income households.

Economically-challenged energy efficiency programs are also referenced in the following sections of FEJA, related to solar programs and renewable energy resources funds (language has been excerpted):

1. **1-56(b)(2):** The Illinois Power Agency Renewable Energy Resources Fund shall also be used to create the Illinois Solar for All Program, which shall include incentives for low-income distributed generation and community solar projects, and other associated approved expenditures. The objectives of the Illinois Solar for All Program are to bring photovoltaics to low-income communities in this State in a manner that maximizes the development of new

photovoltaic generating facilities, to create a long-term, low-income solar marketplace throughout this State, to integrate, through interaction with stakeholders, with existing energy efficiency initiatives, and to minimize administrative costs. The Agency shall include a description of its proposed approach to the design, administration, implementation and evaluation of the Illinois Solar for All Program, as part of the long-term renewable resources procurement plan authorized by subsection (c) of Section 1-75 of this Act, and the program shall be designed to grow the low-income solar market. The Agency or utility, as applicable, shall purchase renewable energy credits from the (i) photovoltaic distributed renewable energy generation projects and (ii) community solar projects that are procured under procurement processes authorized by the long-term renewable resources procurement plans approved by the Commission.

2. **1-56(b)(2) Con't:** Contracts under the Illinois Solar for All Program shall include an approach, as set forth in the long-term renewable resources procurement plans, to ensure the wholesale market value of the energy is credited to participating low-income customers or organizations and to ensure tangible economic benefits flow directly to program participants, except in the case of low-income multi-family housing where the low-income customer does not directly pay for energy. Priority shall be given to projects that demonstrate meaningful involvement of low-income community members in designing the initial proposals. Acceptable proposals to implement projects must demonstrate the applicant's ability to conduct initial community outreach, education, and recruitment of low-income participants in the community. Projects must include job training opportunities if available, and shall endeavor to coordinate with the job training programs described in paragraph (1) of subsection (a) of Section 16-108.12 of the Public Utilities Act.
3. **1-56(b)(5):** The Agency shall issue a request for qualifications for a third-party program administrator or administrators to administer all or a portion of the Illinois Solar for All Program. The third-party program administrator shall be chosen through a competitive bid process based on selection criteria and requirements developed by the Agency, including, but not limited to, experience in administering low-income energy programs and overseeing statewide clean energy or energy efficiency services. If the Agency retains a program administrator or administrators to implement all or a portion of the Illinois Solar for All Program, each administrator shall periodically submit reports to the Agency and Commission for each program that it administers, at appropriate intervals to be identified by the Agency in its long-term renewable resources procurement plan, provided that the reporting interval is at least quarterly.

C. Historical Illinois Economically-Challenged Energy Efficiency Programs

Included in the Appendix is an overview of historical economically-challenged energy efficiency program offerings and initiatives in Illinois, with distinction between utility-funded and non-utility funded initiatives. Non-utility initiatives can be used to leverage and extend finite ratepayer dollars.

1. Utility-Funded Programs

The programs summarized in the Appendix were in effect for the period of June 1, 2016 through May 31, 2017, administered by the Department. Program information is no longer included on the Department website and has been included for reference.

From June 1, 2017 to December 31, 2017 and beyond, economically-challenged programs will be administered by utilities (Ameren Illinois, ComEd, Nicor Gas, and Peoples Gas – North Shore Gas).

This change to management and administration was designated in the Future Energy Jobs Act.¹⁴ Economically-challenged energy efficiency program plans are in process for the four-year energy efficiency portfolios that begin on January 1, 2018. Programs are anticipated to be approved by the Commission in September 2017.¹⁵

2. Non-Utility-Funded Programs

The following non-utility funded economically-challenged energy efficiency programs were in effect at the time of this report (May 2017).

Energy Savers Program – Loan Fund

- **Eligibility:**
 - Multi-family rental properties of five or more units located in Cook, DuPage, Kane, Kendall, Lake, McHenry or Will County or the cities of Chicago or Rockford.
- **Description:**
 - Low cost loans, administered by Community Investment Corporation, for multi-family energy efficiency retrofit projects.

Illinois Home Weatherization Assistance Program (“IHWAP”)

- **Eligibility:**
 - Up to 200% of the federal poverty level. Additional restrictions apply for State and Health and Human Services funding, which is limited to residents up to 150% of the federal poverty level.
- **Description:**
 - Weatherization services that can be funded through IHWAP include air sealing, attic and wall insulation, furnace repair and replacement, and electric base load reduction (lighting and refrigerator, and window and door weatherization).
- **Incentive:**
 - Maximum \$7,500 per eligible home for energy-related weatherization and repair work.
- **Funding:**
 - Federal allocation for Illinois is approximately \$11M each year, as of May, 2017. Federal funding is subject to change, with the \$11M an average of 2013 – 2016 allocations.
 - The Weatherization Assistance Program is funded primarily through the Department of Energy. However, in accordance with the LIHEAP program rules, Illinois typically transfers 15% of LIHEAP dollars, funded by the U.S. Department of Health & Human Services (HHS), to the Weatherization Program. In Illinois, additional dollars are provided by the State Energy Program.

Low Income Home Energy Assistance Program (“LIHEAP”)

- **Eligibility:**
 - Up to 150% of the federal poverty level.
 - Renters with heat and/or electric included in the rent may qualify if rent is greater than 30% of the household income.

¹⁴ See Public Utilities Act (220 ILCS 5/8-103B) and (220 ILCS 5/8-104).

¹⁵ Illinois Department of Commerce and Economic Opportunity, Illinois Energy Now.

- **Description:**
 - Federal assistance program, with the majority of funding allocated to customer utility cost assistance including heating assistance, and emergency or crisis assistance to restore heating due to an extreme weather condition.
 - A portion of the overall funding may be allocated to IHWAP program. For the 2016-2017 period, 15% was allocated, approximately \$25M.
- **Incentive:**
 - Not applicable – funding is allocated to the IHWAP program.
- **Funding:**
 - Federal allocation for Illinois is approximately \$165M each year. Federal funding is subject to change, with the \$165M an average of 2013 – 2016 allocations.

3. Future Considerations

The IHWAP and LIHEAP programs will continue to be managed by the Department, in partnership with local Community Action Agencies. However, the draft federal budget for 2018 includes a discontinuation of federal funding for both IHWAP and LIHEAP. Additional analysis may be required for both federal and state funding once the federal budget for 2018 is finalized.

D. Types of Multi-Family Affordable Housing

“Affordable housing” is defined by HUD as “housing for which the occupant(s) is/are paying no more than 30 percent of his or her income for gross housing costs, including utilities... some jurisdictions may define affordable housing based on other, locally determined criteria, and that this definition is intended solely as an approximate guideline or general rule of thumb.”¹⁶ Two types of affordable housing exist: subsidized and unsubsidized. Subsidized affordable housing refers to housing that is subsidized by either federal, state, and/or local public sources (or a combination of the three) to make rent levels affordable to economically-challenged households. Unsubsidized affordable housing refers to housing where the market-rate rents are “naturally” affordable to economically-challenged households. Nationally, affordable housing is typically 30 percent subsidized and 70 percent unsubsidized. Public Housing Authorities (“PHAs”) account for approximately 10 percent of the total subsidized affordable housing, approximately 3 percent of all affordable housing.¹⁷

The draft federal budget for 2018 includes a 13.2% reduction in HUD’s budget, totaling \$6.2 billion, which may impact the type of subsidies available to Illinois residents.¹⁸ Additional analysis may be required on subsidized housing once the federal budget for 2018 is finalized.

There are key differences between subsidized and unsubsidized affordable housing. The differences outlined below are applicable primarily to multi-family affordable housing.

1. Subsidized Affordable Housing

- Receives public subsidies, including but not limited to:
 - Section 8 or Housing Choice Voucher Program¹⁹

¹⁶ See https://www.huduser.gov/portal/glossary/glossary_all.html.

¹⁷ See Joint Center for Housing Studies of Harvard University [JCHS], 2011.

¹⁸ “Here’s what Trump’s proposed budget means for housing: And the affordable housing programs it would cut.” Housing Wire. May 23, 2017. Available at: <http://www.housingwire.com/articles/40192-heres-what-trumps-budget-means-for-housing>.

¹⁹ US HUD, https://www.huduser.gov/portal/glossary/glossary_all.html: Section 8 Existing Rental Assistance: Rental assistance, vouchers or certificates, to low-income families who are unable to afford market rents. Section 8 Homeownership Program: Section 8

- Section 202²⁰
- Section 236²¹
- Section 811 Project Rental Assistance (PRA)²²
- Rental Assistance Demonstration (RAD)²³
- Home Investment Partnership Program (HOME)²⁴
- Neighborhood Stabilization Program (NSP)²⁵
- Low-Income Housing Tax Credit (LIHTC)²⁶
- May be either publicly or privately owned.²⁷
- Some residents living in properties managed by a Public Housing Authority are eligible for utility allowances if the utility cost is not included in the rent.²⁸
- Also referred to as “assisted housing.”

2. Unsubsidized Affordable Housing

- Do not receive any public subsidies.
- No compliance requirements exist.²⁹
- No affordability commitment; rents can increase above “affordable housing” limits without regulation.³⁰
- All properties are privately owned.³¹
- Also referred to as “unassisted housing.”

E. Illinois Economically-Challenged Sector

An overview of the economically-challenged customer segment in the state of Illinois is described below.

1. Economically-Challenged Customer Base

The Energy Resource Center at the University of Illinois at Chicago (“ERC”) recently completed a potential study for the Department which provides key information on the economically-challenged

eligible families may use certificates or vouchers to pay for homeownership costs under a mortgage. Now referred to as “Housing Choice Voucher Program.”

²⁰ US HUD, https://www.huduser.gov/portal/glossary/glossary_all.html; Section 202: Capital advances to finance the construction, rehabilitation or acquisition (with or without rehabilitation) of structures that will serve as supportive housing for very-low-income elderly persons, including the frail elderly, and provides rent subsidies for the projects to help make them affordable.

²¹ US HUD, <https://www.hudexchange.info/programs/section-236-preservation/>; Section 236: Preservation of the affordability of rental housing units originally developed through the Section 236 mortgage program.

²² US HUD, <https://www.hudexchange.info/programs/811-pra/>; Identification, stimulation, and support of successful and innovative state approaches to providing integrated supportive housing for people with disabilities.

²³ US HUD, <https://portal.hud.gov/hudportal/HUD?src=/RAD/program-details>; Rental Assistance Demonstration: Funding for capital improvement and deferred maintenance needs of Public Housing Authorities.

²⁴ US HUD, https://www.huduser.gov/portal/glossary/glossary_all.html; Formula grants to states and localities for communities and nonprofit groups to fund a wide range of activities that build, buy, and/or rehabilitate affordable housing for rent or homeownership, or to provide direct rental assistance to low-income people.

²⁵ US HUD, https://www.huduser.gov/portal/glossary/glossary_all.html; Emergency assistance to state and local governments to acquire and redevelop foreclosed or abandoned properties to stabilize neighborhoods and stem decline of house values of neighboring homes.

²⁶ US HUD, https://www.huduser.gov/portal/glossary/glossary_all.html; Tax incentive or credit to owners of newly constructed or substantially rehabilitated low-income rental housing projects to increase the availability of low-income housing.

²⁷ Community Investment Corporation, 2017.

²⁸ US HUD, https://portal.hud.gov/hudportal/HUD?src=/program_offices/public_indian_housing/programs/ph/phecc/allowances.

²⁹ Minnesota Preservation Plus Initiative, 2013: The Space Between: Realities and Possibilities in Preserving Unsubsidized Affordable Rental Housing.

³⁰ Minnesota Preservation Plus Initiative, 2013: The Space Between: Realities and Possibilities in Preserving Unsubsidized Affordable Rental Housing.

³¹ Community Investment Corporation, 2017.

customer base in Illinois.³² Economically-challenged customers are defined in the study as customers at or below 150 percent of the federal poverty level. ERC identified total economically-challenged customers in Illinois for both single-family and multi-family residences:

Single-family Economically-Challenged Customers:

- 498,526 electric customers
- 422,264 natural gas customers
 - Note: Fewer total natural gas customers exist due to all-electric homes or those with an alternative fuel source (e.g., propane).

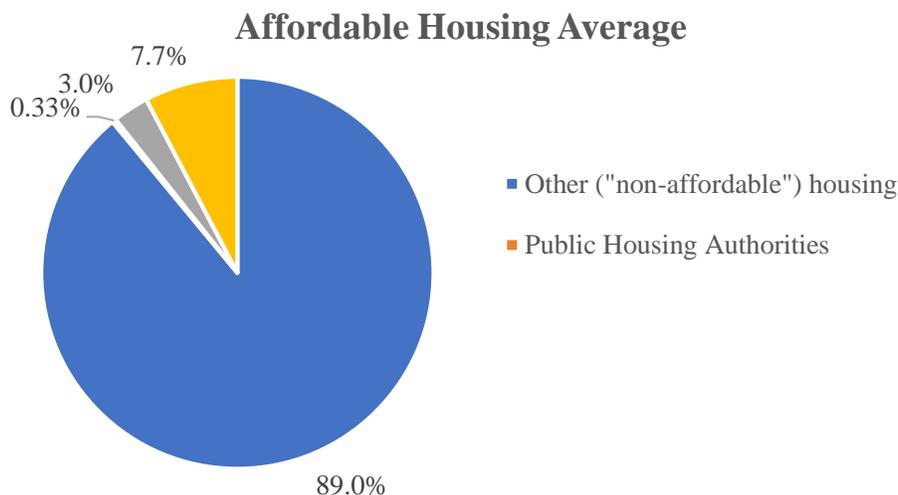
Multi-family Economically-Challenged Customers:

- 545,208 electric customers
- 352,305 natural gas customers
 - Note: The significant difference in the number of electric versus natural gas customers is due primarily to single natural gas accounts serving entire multi-family properties for heating and domestic hot water.³³

2. Affordable Housing

In Illinois, Energy Efficiency For All identified 605,000 units of affordable multi-family housing in a recent study, which represents 11 percent of all Illinois housing stock.³⁴ In Cook County, the Institute for Housing Studies at DePaul University found that 42 percent of all of the rental housing stock is identified as “affordable rental housing.”³⁵

Chart 1: Affordable Housing Types as a Percent of Total Housing



3. Geographic Dispersion

A study was conducted by the Assisted Housing Initiative on the number of Extremely Low Income (“ELI”) residents in Illinois versus the number of affordable housing units available using the American Community Survey data, among other sources. The study identified a total of 463,043

³² Baker, 2016: Illinois Public Sector and Low Income Housing Energy Efficiency Potential Study.

³³ Baker, 2016: Illinois Public Sector and Low Income Housing Energy Efficiency Potential Study.

³⁴ Energy Efficiency for All, 2015: Potential for Energy Savings in Affordable Multifamily Housing: Illinois Fact Sheet.

³⁵ Institute for Housing Studies at DePaul University, 2014: Understanding Neighborhood Multifamily Lending Trends in the Wake of the Housing Crisis.

Extremely Low Income residents in Illinois. In comparison, there are only 128,651 units available in the market that provide affordable housing, representing 28% of Extremely Low Income residents in Illinois. This is slightly higher than the national average of 21%.³⁶

Using county-level data available from the Urban Institute, the Assisted Housing Initiative on Extremely Low Income (“ELI”) households also identified the top twenty counties with the highest number of Extremely Low Income residents in Illinois. Extremely Low Income Customers do not exceed the higher of³⁷ poverty level (100%), or 30% of Area Median Income (“AMI”).

The top twenty counties are noted in Table 1 below, reflecting both the percentage of total Illinois population that resides in the county and the percentage of Illinois’ Extremely Low Income population that resides in that county. The differences are noted to highlight those counties with a disproportionate percentage of Extremely Low Income residents.

Table 2: Top Illinois Counties with Largest Population of Extremely Low Income Residents			
	County Total Population <i>(Percentage of all IL population)</i>	County ELI Population <i>(Percentage of all IL ELI population)</i>	Difference between ELI and Total
Cook County	42.5%	55.2%	12.8%
Lake County	5.7%	3.6%	-2.1%
DuPage County	7.5%	3.5%	-4.1%
Champaign County	1.7%	3.0%	1.4%
Winnebago County	2.4%	2.8%	0.4%
St. Clair County	2.2%	2.6%	0.5%
Kane County	4.2%	2.5%	-1.8%
Madison County	2.2%	2.3%	0.1%
Will County	5.5%	2.2%	-3.4%
Sangamon County	1.6%	1.8%	0.1%
Peoria County	1.5%	1.7%	0.2%
McLean County	1.4%	1.7%	0.3%
DeKalb County	0.8%	1.5%	0.6%
Rock Island County	1.2%	1.2%	0.0%
Jackson County	0.5%	1.1%	0.6%
McHenry County	2.5%	1.0%	-1.5%
Macon County	0.9%	0.9%	0.0%
LaSalle County	0.9%	0.8%	-0.2%
Tazewell County	1.1%	0.7%	-0.4%
Kankakee County	0.9%	0.7%	-0.3%

4. Economically-Challenged Energy Use in Illinois

Through an analysis of energy use in Illinois, ERC found that the economically-challenged customer segment totals 5.6 percent of electric usage and 9.2 percent of natural gas usage statewide.³⁸ Charts 3.1

³⁶ Getsinger, 2017: The Housing Affordability Gap for Extremely Low-Income Renters in 2014.

³⁷ See <https://portal.hud.gov/hudportal/documents/huddoc?id=16-09hsgn.pdf>.

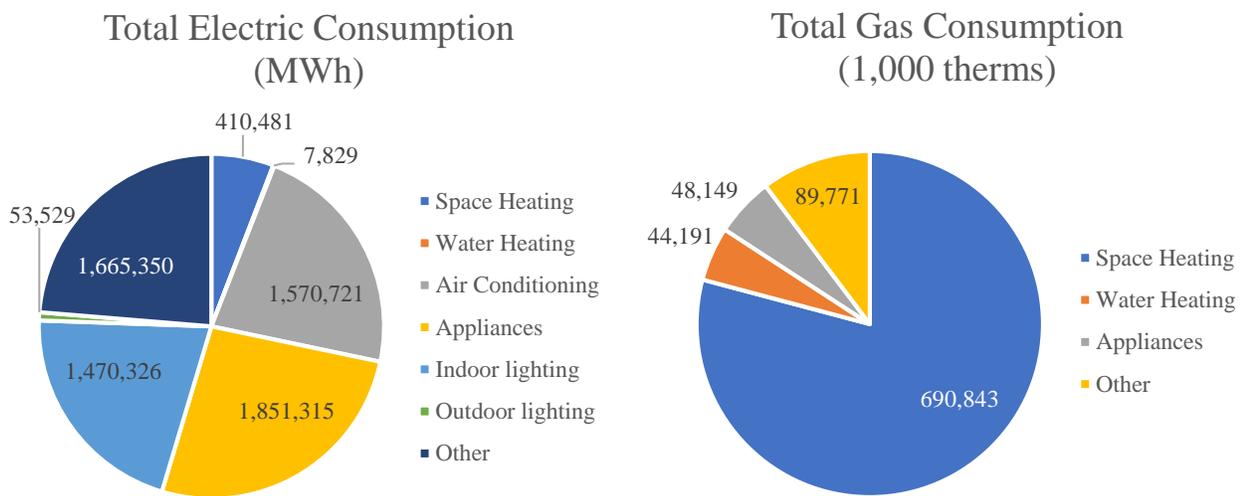
³⁸ See Baker, 2016: Illinois Public Sector and Low Income Housing Energy Efficiency Potential Study: 2017-2022 Forecast.

and 3.2 below show the total electric and gas consumption for economically-challenged customers, those at or below 150% of federal poverty level.

Charts 4.1, 4.2, 4.3 and 4.4 in the Appendix compare the average annual residential energy consumption by non-economically-challenged customers in Illinois to economically-challenged customers in the Midwest. Illinois-specific economically-challenged data was not included in this survey.³⁹

Compared to non-economically-challenged customers, economically-challenged customers use a similar amount of gas for space heating as a percentage of overall gas usage, and slightly more gas for water heating as a percentage of overall gas usage. For electric usage, economically-challenged customers use more electricity (kWh) than non-economically-challenged customers for space heating, suggesting these end uses as appropriate targets to consider for energy efficiency efforts.

Chart 3.1 and Chart 3.2: Total Electric and Gas Consumption by Economically-Challenged Customers in Illinois



F. Economically-Challenged Property Types

1. Building Stock: Multi-Family versus Single Family Property Types

An important consideration for Illinois utilities in designing economically-challenged programs are the distinctions between economically-challenged customers living in single-family versus multi-family residences. A comparison of the percentage of single family and multi-family housing for both economically-challenged and non-economically-challenged customers is detailed in Table 3 below.

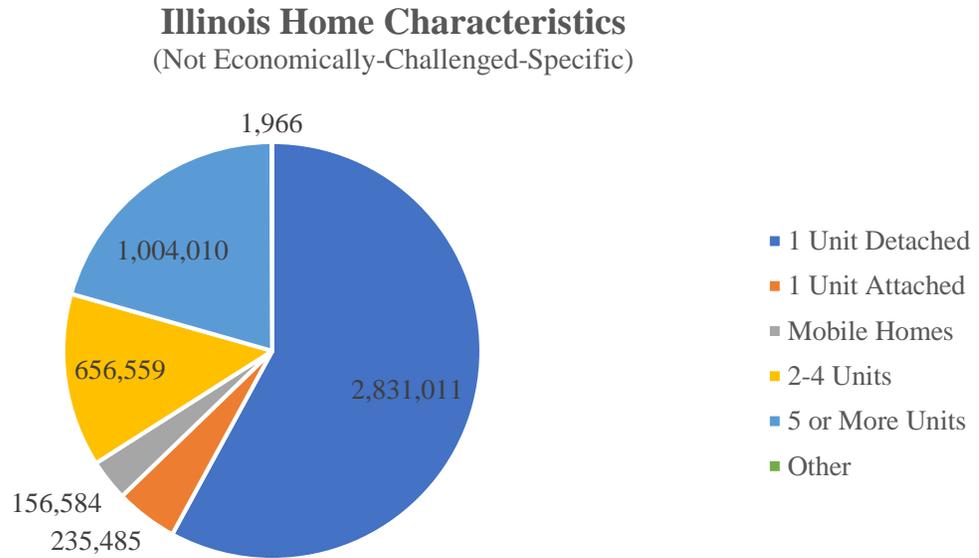
³⁹ See 2009 Residential Energy Consumption Survey

Table 3: Single-Family Versus Multi-Family Properties: National, Illinois and Illinois – Economically-Challenged Averages⁴⁰

	National Housing Average ⁴¹	Illinois Housing Average ⁴²	Illinois Economically-Challenged Housing Average ⁴³
Single-Family	74%	66%	48%
Multi-Family	26%	34%	52%

Chart 2 below provides an overview of home characteristics in Illinois, split into six categories.⁴⁴

Chart 2: Illinois Home Characteristics



A deeper analysis of the Chicago metro, Midwest and National averages is shown in the Tables 4.1, 4.2, and 4.3 in the Appendix. The analysis found that roughly 50% of economically-challenged households (<150% of poverty level) live in single-family homes in the Chicago Metro area, roughly 60% in the Midwest, and over 60% nationally. This data demonstrates that single-family housing is as important to serve as multi-family housing, and program implementation dollars should be allocated accordingly. The Midwest is limited to Illinois, Indiana, Michigan, Ohio and Wisconsin in this analysis.⁴⁵

2. Owner-Occupied versus Renter-Occupied Housing

An important consideration for economically-challenged program design and customer outreach is whether the economically-challenged customer is a renter (tenant) or homeowner. Table 5 in the Appendix provides data on owner-occupied versus renter-occupied economically-challenged units.⁴⁶ The analysis found that renters make up 61% of the economically-challenged segment in the Chicago

⁴⁰ Illinois Averages: Raw data for Table 2. Single family includes detached, attached, and mobile home units); multi-family includes the 2-4 and 5or more unit categories.

⁴¹ US Census – American Housing Survey – 2015, all national housing (not low income-specific)

⁴² US Census – American Housing Survey – 2015, all Illinois housing (not low income-specific)

⁴³ Illinois Public Sector and Low Income Housing Energy Efficiency Potential Study, Energy Resource Center

⁴⁴ US Census – American Housing Survey – 2015, all national housing (not low income-specific)

⁴⁵ See American Housing Survey, 2015.

⁴⁶ See American Housing Survey, 2015.

Metro area, 59% in the Midwest and 60% nationally. While renters make up the majority, a significant portion of the economically-challenged community, roughly 40%, own their homes. This data demonstrates that both owner-occupied and tenant properties should be served by energy efficiency programs.

G. Economically-Challenged Building Stock Characteristics

1. Economically-Challenged Housing Differs from Other Housing⁴⁷

While a detailed analysis of the economically-challenged building stock has not been completed in Illinois, seven key characteristics for economically-challenged housing can be inferred from a 2015 American Housing Survey for the Chicago metro area, compared to non-economically-challenged housing:

- **Economically-challenged customers are more likely to heat their homes with electricity or another fuel type.**
 - Economically-challenged:
 - Electric heat: 18.8%
 - Gas heat: 78.3%
 - Bottled gas: 1.8%
 - Fuel oil: 0.9%
 - Non-economically-challenged:
 - Electric heat: 9.8%
 - Gas heat: 87.9%
 - Bottled gas: 1.4%
 - Fuel oil: 0.4%
- **Economically-challenged customer homes have a smaller square footage.**
 - Economically-challenged: 1050 sq. ft.
 - Non-economically-challenged: 1400 sq. ft.
- **Economically-challenged customers are more likely to live in older homes.**
 - Economically-challenged: 63% have homes built before 1980
 - Non-economically-challenged: 53% have homes built before 1980
- **Economically-challenged customers are more likely to live in homes with moderate or severe inadequacies.**
 - Economically-challenged: 10.7% considered homes to be severely or moderately inadequate, with the top severely inadequate conditions:
 - 1) Heating
 - 2) Plumbing
 - 3) Upkeep
 - Non-economically-challenged: 4.2% considered severely or moderately inadequate, with the top severely inadequate conditions:
 - 1) Heating
 - 2) Plumbing
 - 3) Electric.
- **Economically-challenged customers are more likely to have experienced uncomfortable cold for 24 hours or more.**
 - Economically-challenged: 16.3% of residents
 - Non-economically-challenged: 7.7% of residents

⁴⁷ See American Housing Survey, 2015.

- **Economically-challenged customers are more likely to have experienced uncomfortable cold for 24 hours or more due to:**
 - Equipment breakdowns (39.6% versus 32.6%)
 - Inadequate heating capacity (27.2% versus 23.2%)⁴⁸
- **For customers who completed a home improvement in the last year, economically-challenged customers are more likely to focus on essential home improvements (while non-economically-challenged complete a wider variety of home improvements).**
 - 53.3 percent of economically-challenged projects versus 42.5 percent of non-economically-challenged projects include the following essential home improvements:
 - Water heater / dishwasher / garbage disposal
 - HVAC
 - Windows/door
 - Roofing
 - Plumbing
 - Flooring / carpeting / paneling / ceiling

2. Economically-Challenged Residences Have a Greater Energy Savings Potential

Since economically-challenged customers often live in older homes with less insulation, their homes have greater heating and cooling needs. In addition, a higher percentage of economically-challenged customers heat their homes with electricity. Both of these findings support the conclusion that economically-challenged residences have a greater energy savings potential, including both single-family and multi-family customers.

3. More Economically-Challenged Customers Live in Multi-Family Residences

As detailed above in Section 2, a greater percentage of economically-challenged customers in Illinois live in multi-family properties (52 percent) compared to single-family homes (48 percent).⁴⁹

4. Economically-Challenged Customers Have Different Energy Use Patterns

A 2016 study by ACEEE⁵⁰ found several key characteristics that may contribute to different energy use patterns in economically-challenged homes, compared to non-economically-challenged homes. Illinois data from both the Energy Resource Center potential study and the American Housing Survey support these findings. The following includes key home characteristics identified in the ACEEE study:

- **Greater Electric Use:** Higher electric consumption is due to home and water heating.
 - **Electric Heating:**
 - 37% of economically-challenged owner-occupied households heat primarily with electricity (versus 29% for all households).
 - 4% of economically-challenged owner-occupied households heat primarily with portable electric heaters (versus 0% of non-economically-challenged households).

⁴⁸ Non-economically-challenged customers were more likely to experience uncomfortable cold due to utility interruption.

⁴⁹ Baker, 2016: Illinois Public Sector and Low Income Housing Energy Efficiency Potential Study.

⁵⁰ ACEEE, 2016: Building Better Energy Efficiency Programs for Low-Income Households.

- Electric resistance heating is typically more expensive than natural gas and other heating fuel central systems. Portable electric heaters are significantly more expensive when used to heat the entire living space.
 - **Electric Water Heating:**
 - 48% of economically-challenged households have electric water heaters (versus 38% for all households)
 - Electric water heaters are typically more expensive than natural gas or other fuel water heaters, with the exception of heat pump water heaters, an electric water heater type that is often inaccessible economically-challenged customers due to a high cost.
- **Greater Heating/Cooling Energy Use:**
 - **Lack of HVAC Controls:**
 - 24% of economically-challenged households have programmable thermostats (versus 47% of non-economically-challenged households).
 - Fewer economically-challenged households lower the heating temperature when residents are away from home (60% of economically-challenged, versus 71% of non-economically-challenged).
 - Temperature set points are higher on average in economically-challenged households (60% of economically-challenged maintain temperatures at 70°F or above, versus 30% of non-economically-challenged households).
 - The ACEEE study noted that, due to these findings, economically-challenged homes may be more difficult to heat or maintain comfortable temperatures, either due to insufficiency of the heating system or poor insulation.

5. Economically-Challenged Customers Have Different Baseline Equipment

The 2016 ACEEE study identified common characteristics that should be considered when establishing equipment baselines for calculating energy savings – older, less efficient appliances and older, less efficient heating systems. An Illinois-based study may be necessary to confirm these findings.

- **Older, Less Efficient Appliances:**
 - 33% of economically-challenged households have refrigerators older than 10 years old (versus 26% of non-economically-challenged households).
 - 29% of economically-challenged households have ENERGY STAR refrigerators (versus 45% of all households)
 - 24% of economically-challenged households have ENERGY STAR clothes washers (versus 46% of non-economically-challenged households).
 - 67% of economically-challenged households have a clothes dryer (versus 90% of non-economically-challenged households).
 - Economically-challenged households are more likely to use an appliance that is older and would have generally been retired, or purchase or receive an older appliance that has been previously used.
- **Older, Less Efficient Heating Systems:**
 - While not identified in the study, as economically-challenged households are more likely to use a furnace well beyond its useful life, economically-challenged households are likely to have older and lower-rated units, from earlier federal standard periods.
 - Units are also more likely to be replaced on burnout, rather than replaced prior to failure.

- Additional research is needed to identify the average age of equipment in order to establish the average efficiency.

Section 3: Profile of Notable Programs

Economically-challenged programs across the country were reviewed for this report to identify successful program design and implementation strategies that may inform Illinois utilities and stakeholders on economically-challenged program planning and implementation. Brief summaries of notable programs are provided in this section, organized by program type: Comprehensive Programs, Multi-Family Programs and Financing Programs.

A summary table with the full list of programs reviewed is provided at the end of this section. Details on additional programs reviewed are available in Appendix A, Additional Research. The U.S. Environmental Protection Agency (“EPA”)⁵¹, American Council for an Energy Efficient Economy (“ACEEE”) and New York State Energy Research and Development Authority (“NYSERDA”) were particularly valuable resources in this research effort to identify notable programs.⁵² Further research is needed on notable programs to identify budget spend, savings achieved, cost-effectiveness, total participation, incentive levels, incentive versus non-incentive costs, partnerships, outreach strategies and evaluation results to fully inform Illinois utilities and stakeholders on successful program designs.

A. Comprehensive Programs

The programs profiled in this section have the following notable features indicative of successful economically-challenged programs:

1. Working through a broad network of community-based organizations
2. Engaging local leaders
3. Technical assistance (low cost audits)
4. Enhanced incentives that vary based on income level (customers with incomes 60-80% AMI can pay a portion of the measure cost), and
5. Respectful language to describe eligible customers and program offerings.

DTE Energy Low-Income Energy Efficiency Assistance Program⁵³

DTE Energy utilizes partnerships with more than 30 organizations and agencies that serve economically-challenged communities to engage thousands of eligible customers through multiple program pathways in the Low-Income Energy Efficiency Assistance Program. This program offers a variety of energy efficiency measures to customers in both single and multi-family residences. Program pathways include education, financial assistance, recommendations to reducing energy use, and offering LEDs through food banks. Incentives are not paid directly to eligible economically-

⁵¹ The EPA reviewed effective economically-challenged programs to identify successful efforts by utilities, non-profit organizations, and state and local agencies for both energy efficiency and renewable energy. The EPA looked for programs based on their ability to achieve results through implementation, as well as each program’s potential to be “scalable, replicable, and sustainable.” The EPA also made an effort to showcase diverse communities, both in geography and size, and different types of programs.

⁵² Footnote references to EPA research are from the “January 19, 2017 Snapshot”, an archived version of the EPA website. The current administration is updating the website to reflect the EPA’s priorities under President Trump and Administrator Pruitt. See: <https://www.epa.gov/sites/production/files/signpost/cc.html>.

⁵³ See DTE Energy Low-Income Energy Efficiency Program, Program Profile: Tapping Existing Networks to Broaden Program Reach. U.S. EPA State and Local Climate and Energy Program. Available at: https://19january2017snapshot.epa.gov/sites/production/files/2016-06/documents/dte_profile_6-1-16_508.pdf.

challenged customers; instead, DTE Energy uses in-kind services at no cost to the customer such as the installation of low-cost measures and weatherization plus the replacement of a high efficiency refrigerator.

DTE's economically-challenged program began in 2009, using energy efficiency dollars to supplement the state's federal weatherization program. However, this program design did not reach participation targets due to weatherization agencies struggling to meet the demands that additional funding can bring. As a result, DTE began using census-based targeting to identify eligible customers in economically-challenged neighborhoods. Program participation in the economically-challenged programs increased by over 400 percent between 2011 and 2012. In 2014, participants in the DTE economically-challenged program averaged \$120 per year in utility bill savings which corresponded to approximately 6 percent savings in electricity and 14 percent savings in natural gas costs.

***Notable Achievements:* Working through a diverse network of partnerships has resulted in increased economically-challenged program participation.** DTE Energy works with community action agencies, food banks, neighborhood associations, veterans' organizations, Habitat for Humanity, affordable housing organizations, and more. **This extensive network provides a variety of opportunities to reach economically-challenged customers and also assists the utility in identifying customers.** The outreach goes both ways: in turn, DTE Energy links energy efficiency program customers with the appropriate bill assistance and public programs.

Duke Energy Neighborhood Energy Saver Program⁵⁴

The Duke Energy Neighborhood Energy Saver Program utilizes a "community approach" by targeting economically-challenged neighborhoods to reduce energy for both single and multi-family residents.⁵⁵ This allows the utility to save energy for a large number of residents at one time – each neighborhood target includes 1,000 homes and lasts 8-10 weeks. Duke Energy selects economically-challenged neighborhoods based on census and other state income data, defined as areas where at least 50 percent of residents live below 200 percent of the federal poverty level. Representatives of the program work with local leaders in the target neighborhood to hold community events that explain the program and its benefits. Utility contractors then provide several energy saving opportunities for customers at no cost – walk-through home energy assessments, installation of energy-saving measures⁵⁶, and education on energy efficiency.

⁵⁴ See Duke Energy Neighborhood Energy Saver Program, Program Profile: A Neighborhood-Based Approach to Energy Efficiency. U.S. EPA State and Local Climate and Energy Program. Available at: https://19january2017snapshot.epa.gov/sites/production/files/2017-01/documents/duke_energy_profile_508.pdf.

⁵⁵ Eligible customers include homeowners and tenants in individually metered residential buildings.

⁵⁶ Measures offered include "water heating upgrades, including a water heater temperature check and adjustment, insulation for the water heater and pipes, faucet aerators, and low-flow showerheads; refrigerator efficiency improvements, including cleaning refrigerator coils and installing refrigerator thermometers; space conditioning improvements, including wall plate thermometers, filters and filter change calendars; door sweeps, caulking, foam insulation, and weather stripping. In 2016, Duke Energy added air-conditioning maintenance, duct sealing, and attic insulation to its program in Florida; and seven compact fluorescent light bulbs, one LED light, and a calendar with energy-saving tips for each month of the year." See Duke Energy Neighborhood Energy Saver Program, Program Profile.

Notable Achievements: The average savings for installed measures total approximately \$100 per year for a single-family home, which is a 7 percent savings on average annual electricity bills. **Over the past 10 years (2006 – 2016), more than 95,000 customers have participated in 156 communities, with over 218,000 megawatt-hours MWh of energy savings. Of the communities selected for participation, the average participation rate is 70 percent.** This program has successfully served economically-challenged customers for three reasons: 1) Providing no-cost energy upgrades eliminates the financial barrier to program participation; 2) Working with community leaders increases neighborhood engagement and builds trust; and 3) **Communication is key – “community early and often, build trust through face-to-face contact, and emphasize convenience.”**⁵⁷ The neighborhood concept was originally piloted by Duke Energy in Florida. Due to its success, the program design has been adopted by other Duke Energy subsidiaries, including those operating in North Carolina, South Carolina, Ohio, Kentucky, and Indiana.

Enhanced Low Income Customer Programs – Focus on Energy⁵⁷

Focus on Energy in Wisconsin offers two residential programs with enhanced offerings that extend existing residential programs for economically-challenged customers - the Enhanced Rewards Program and Assisted Home Performance with ENERGY STAR Program. Information on both programs is summarized below. Wisconsin Act 141 requires that statewide energy efficiency programs include components to address the energy needs of residential, commercial, agricultural, institutional, and industrial energy users and local units of government, and initiatives to address market barriers to the offering of goods and services relating to energy efficiency and renewable resources. Focus on Energy defines "low to moderate income" customers as 60-80% of State Median Income ("SMI"). Focus on Energy does not target programs directly to economically-challenged customers. If a customer is interested in applying for enhanced rewards, Focus on Energy has a simple, streamlined approach to qualifying customers: 1. The last three months of pay stubs, or 2. the most recent tax return.

- The Enhanced Rewards Program is offered as part of the Residential Rewards Program, a prescriptive rebate program for residential customers offering rebates for furnaces, attic insulation, attic air sealing, wall insulation, etc. The programs were combined in 2013, which has proven to be a successful strategy. The Enhanced Rewards Program targets customers considered "low-moderate income", as described above. These customers may be financially unable to participate in the Residential Rewards Program but do not qualify for, or choose not to participate in, other Wisconsin income-eligible programs (e.g. Weatherization Assistance Program or Home Energy Plus program offered by the Wisconsin Department of Administration). Higher rebates are offered in the Enhanced program. For example, a standard natural gas furnace rebate for a 95% AFUE unit with ECM is \$150. An Enhanced rebate for the same product is \$700.

⁵⁷ Focus on Energy Evaluation Report 2014 – Volume II. Retrieved from: <https://focusonenergy.com/about/evaluation-reports>; Focus on Energy Residential Rewards and Enhanced Rewards Website: <https://focusonenergy.com/residential/efficient-products-appliances/residential-rewards>; Focus on Energy Home Performance with ENERGY STAR Website: <https://focusonenergy.com/residential/efficient-homes/home-performance-energy-star>; and Income Eligible Residents, Focus on Energy Website: <https://focusonenergy.com/residential/income-eligible-residents>. Additional information provided by Paul Grimyser, Focus on Energy Program Lead for Residential/Enhanced Rewards and Home/Assisted Home Performance with ENERGY STAR Programs. Program overview from Illinois Stakeholder Advisory Group Portfolio Planning Process – an “enhanced rewards” program idea was submitted by the Illinois Attorney General’s Office in fall 2015 for utility consideration.

- The Assisted Home Performance with ENERGY STAR Program is offered in complement to the Home Performance with ENERGY STAR Program. The programs were combined in 2013. Eligible customers receive an energy assessment and rebates for making energy efficiency upgrades. The program is marketed as having two "reward levels." Home Performance rebates are labeled Reward Level 1, and the Assisted Home Performance rebates are labeled Reward Level 2. In 2015, eligible customers for Home Performance receive a rebate totaling 33% of total project cost, up to \$1,250. The customer co-pay for an energy assessment is approximately \$400. Eligible customers for Assisted Home Performance receive a rebate totaling 75% of the total project cost, up to \$2,000. There is no co-pay for energy assessments offered to income eligible customers. Some Trade Allies offer a "light assessment." Focus on Energy pays the Trade Ally \$100 for completed "light assessments." Trade Allies are required to complete a blower door test. The Trade Ally is the one that explains the "extra rewards" during the assessment. Note: program rewards are currently referred to as "tiers", either "Tier 1" or "Tier 2."⁵⁸

Notable Achievements: Focus on Energy programs serve as a successful example of reaching low-moderate income customers through a single program design that is used for all residential customers – offering “enhanced” rewards, instead of a separate program, to customers that may require additional assistance.

The program is notable because of its terminology “enhanced rewards,” which has a positive connotation rather than using language that might be viewed as derogatory labeling, such as “low income.”

The Enhanced Rewards Program exceeded all goals in 2014, achieving 102%, 109%, and 110% of electric energy and demand and gas goals, respectively. The Assisted Home Performance with ENERGY STAR Program had an 80% conversion rate for assessments to projects in 2015.

Finally, the program is notable due to its very high conversion rate between audits and measure installation of 80%, likely due to the “light, low cost” audit for qualifying customers.

B. Multi-Family Programs

Elevate Energy – Energy Savers⁵⁹

Elevate Energy’s Energy Savers program, which originated in Chicago, IL, is a nationally-recognized model for multi-family energy efficiency programs. Energy Savers is also offered to affordable multi-family housing, bringing these best practices into the economically-challenged sector. The model uses a single point of contact for program participants, referred to as a “one-stop-shop.” Building owners and managers are supported through the process, from the initial engagement and audit, selection of

⁵⁸ The program had 1,655 participants and an incentive spend totaling \$1,388,200 in 2014. Gross lifecycle savings totaled 17,396,740 kWh; 334 kW; and 6,056,445 therms. Gross lifecycle savings totaled 17,396,740 kWh; 334 kW; and 6,056,445 therms. The Residential Rewards portion of the program had 23,550 customer participants in 2014. The Residential Rewards portion of the program had 23,550 customer participants in 2014. The combined program had 2,339 participants in 2014 (629 participants participated in the "Assisted" offering), with an incentive spend totaling \$2,572,120. Gross lifecycle savings totaled 35,716,753 kWh; 660 kW; and 5,798,620 therms.

⁵⁹ See <http://www.elevateenergy.org>.

measures and installation contractors, and post-installation inspections and energy savings monitoring. Elevate Energy has partnered with the local housing community, leveraging these relationships to reach affordable housing owners through trusted sources. A key partnership that supports a customer's ability to complete a project is with Community Investment Corporation, a local Community Development Financial Institution (CDFI), which offers lending services for capital improvement projects.⁶⁰

Since 2008, Elevate Energy has served over 55,000 households in both the non-economically-challenged and economically-challenged sectors, saving more than 15,000,500 kWh and 5,800,000 therms.⁶¹

Notable Achievements: Energy Savers is highly-recognized due to its delivery model, offering a one-stop-shop for multi-family properties. Program staff offer property owners and managers support throughout the entire process, starting with an audit to identify and prioritize energy efficiency improvements, selecting contractors through a bid process, securing financing, and completing quality control inspections and ongoing savings monitoring once the project is complete. The model addresses key barriers to participation many affordable multi-family properties face to ensure streamlined participation and a high conversion rate from audit to project completion.

Multifamily Performance Program⁶²

NYSERDA as a low and moderate income component of the Multifamily Performance Program, to address cost barriers for owners of these properties. This program provides outreach and increases awareness through other organizations that promote the offerings in affordable multi-family buildings. The program began in 2005 and has experienced several program design changes since that time to ensure its success. In 2015, there was a high demand for incentives through this program that resulted in a temporary suspension. The most recent program design began in spring 2016, offering two options for energy upgrades: 1) A “targeted option” with incentives for “single measure installations with no minimum energy reduction target” and 2) A “comprehensive option” with incentives for “work scopes designed to achieve at least 25 percent whole-building source energy savings.”⁶³ The program also plans to introduce a “deep energy retrofit” offering in 2017.

This program has reached more than 780 affordable multi-family buildings, completing energy efficiency projects and upgrades in over 120,000 residences. The program also assisted in the new construction of 400 affordable multi-family buildings of 30,000 residences. There is \$34 million allocated for 2016 through 2018, with a participation goal of 70,000 affordable units.

⁶⁰ ACEEE, 2014: Effective Strategies for Achieving High Participation and Deeper Savings in Income-Eligible Multifamily Buildings.

⁶¹ Ross, Lauren, Michael Jarrett and Dan York, 2016: Reaching More Residents: Opportunities for Increasing Participation in Multifamily Energy Efficiency Programs.

⁶² See “Report on Alternative Approaches to Providing Low and Moderate Income (LMI) Clean Energy Services.” Clean Energy Advisory Council, LMI Clean Energy Initiatives Working Group. February 3, 2017. Available at: <http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId=%7BB56F124C-0EB9-417B-9886-74F640EC36A9%7D>.

⁶³ Id.

Notable Achievements: The notable achievement of this program is that participants are offered two different program options, with different levels of investment for single measures or comprehensive projects. The flexibility of the program allows for greater participation.

C. Financing Programs

Financing programs can be suitable for economically-challenged populations. Three key distinctions include:

1. Using metrics other than credit score to qualify customers.
2. Being careful to ensure customer bill savings will exceed the cost of loan repayment, including both the loan plus interest. Additional steps may be needed to communicate clearly with the customer, especially if initial loan repayments exceed bill savings, as savings will need to cover the full payment over the full life of the loan.
3. Ensuring a low interest rate.

Help My House Program⁶⁴

Help My House is an on-bill financing program that provides loans for energy efficiency “whole home” improvements. The program was initially piloted from 2011-2013 by a group of rural electric cooperatives in South Carolina for 125 homes, with funding from the U.S. Department of Agriculture (“USDA”) Rural Economic Development Loan and Grant Program. Co-ops screened participants, looking for single family homes with high electricity use – the focus was on economically-challenged communities in rural areas. The loan period is 10 years with a 2.5 percent interest rate. Loans are paid off on utility bills and managed/distributed by a non-profit organization. Financing for loans is based on one year of bill payment history instead of credit score. This is beneficial to economically-challenged customers, since credit score is often a barrier to participation in financing programs. The pilot was designed to be used as a model for other electric cooperatives and utilities.

Notable Achievements: This pilot program **reduced the average participant’s utility bills by close to 35 percent**, or approximately 11,000 kWh on an annual basis. Even with loan payments, participants save approximately \$25 per month on their utility bill. **Customers reported higher satisfaction** with their co-op due to lower bills and improved home comfort. Three of the eight co-ops that participated in the program created permanent programs as a result of the success, and two additional co-ops followed suit.

D. Programs Reviewed

A summary table with the full list of programs reviewed is available in Table 5 below.

⁶⁴ See Help My House Program, Program Profile: Removing the Barrier of Up-Front Costs. U.S. EPA State and Local Climate and Energy Program. Available at: https://19january2017snapshot.epa.gov/sites/production/files/2016-06/documents/help_my_house_profile_6-1-16_508.pdf.

Table 6: Summary of Programs Reviewed

Utility or Program Provider	State	Program Name	Program Type						
			Comprehensive	Weatherization	Multi-Family	Financing	Direct Install	Education	Other
DTE Energy	Michigan	Low-Income Energy Efficiency Assistance Program	X						
Rural Electric Cooperatives	South Carolina	Help My House Program				X			
Duke Energy	North Carolina	Neighborhood Energy Saver Program	X						
Focus on Energy	Wisconsin	Enhanced Rewards Program and Assisted Home Performance with ENERGY STAR Program	X						
MA Electric and Gas Utilities	Massachusetts	Low-Income Multi-family Retrofit Program			X				
NYSERDA	New York	Multi-family Performance Program			X	X			
Seattle and King County water utilities	Washington	Puget Sound Energy Program	X						
Mix of Funding Sources	Illinois	Energy Savers Program			X				
NYSERDA	New York	Empower New York		X					
National Fuel Gas / NYSERDA	New York	National Fuel Low-Income Usage Reduction Program		X					
KEDLI / NYSERDA	New York	KEDLI Low-Income Energy Efficiency Program	X						
PSEG Long Island	New York	Residential Energy Affordability Partnership Program					X		
NYSERDA	New York	Assisted Home Performance with ENERGY STAR	X			X			
Con Edison	New York	Multifamily Energy Efficiency Program					X		

Table 6 Continued: Summary of Programs Reviewed

Utility or Program Provider	State	Program Name	Program Type						
			Comprehensive	Weatherization	Multi-Family	Financing	Direct Install	Education	Other
NYSERDA	New York	New Construction Program			X				
NYSERDA	New York	RetrofitNY Program			X				
Central Hudson Gas & Electric	New York	Community Lighting Program							X
NYSERDA	New York	Green Jobs - Green New York (GJGNY) Revolving Loan Fund				X			
NYSERDA	New York	New York Green Bank				X			
NYSERDA	New York	Consumer Education Program for Residential Energy Efficiency						X	
NYSERDA	New York	Low-Income Forum on Energy						X	
CA Dept. of Community Services and Development	California	Low-Income Weatherization Program	X						

Section 4: Findings

Findings in this section are categorized into three distinct areas: program, customer, and building findings. Specific recommendations for economically-challenged energy efficiency program administration and implementation are described in Section 5, Recommendations.

Program Findings

A. Economically-Challenged Characteristics and Considerations in Illinois

The potential study conducted by ERC for the Department⁶⁵ evaluated specific segment characteristics and program design considerations for economically-challenged energy efficiency programs in Illinois. Many of the ERC study's findings are consistent with national research and recommendations for economically-challenged customers. Three key findings are identified for the economically-challenged customer segment:

1. Economically-challenged energy efficiency programs in Illinois historically included non-energy efficiency savings goals, such as improving economically-challenged customers' comfort and reducing the burden of high utility costs.
2. There are challenges surrounding incentives for economically-challenged customers when the resident is not responsible for the utility bills, or receives a stipend to offset the cost. ERC recommends utilizing other motivating factors for this segment to encourage behavior changes with both residents and property managers due to the lack of economic benefit, such as highlighting quality of life, property improvements, and environmental benefits.
3. Customer engagement and education are key to ensuring successful economically-challenged energy efficiency programs. For example, there is a great opportunity to educate renters on energy use in their residences including managing plug load through the use of advanced power strips.⁶⁶

B. Illinois-Specific Findings

1. Usage Data

Based on the usage data and comparisons in the 2009 Residential Energy Consumption Survey, the following four characteristics on economically-challenged energy use should be taken into account in designing economically-challenged energy efficiency programs in Illinois:

- There is a higher instance of electric heating in economically-challenged residences.⁶⁷
- Overall, the average economically-challenged customer uses less electricity (with the exception of homes using space heating).⁶⁸
- Economically-challenged customers in the Midwest have similar gas usage as all residential customers (economically-challenged and non-economically-challenged) in Illinois, with lower space heating partly due to higher percentage of economically-challenged customers using electric heating (other reasons may include smaller home sizes).⁶⁹
- Overall, there is lower gas usage in economically-challenged homes.⁷⁰

⁶⁵ Baker, 2016: Illinois Public Sector and Low Income Housing Energy Efficiency Potential Study.

⁶⁶ Baker, 2016: Illinois Public Sector and Low Income Housing Energy Efficiency Potential Study.

⁶⁷ See 2009 RECS Survey Data.

⁶⁸ Economically-challenged customers: 10,406 kWh. All customers: 12,702 kWh. See 2009 RECS Survey Data.

⁶⁹ See 2009 RECS Survey Data.

⁷⁰ Economically-challenged customers: 100 MMBtu. All customers: 110 MMBtu. See 2009 RECS Survey Data.

2. Key Organizations

There are numerous community organizations in Illinois that work with utility customers that may meet the guidelines established for participation in economically-challenged energy efficiency programs. Examples of organizations that work with this customer segment on a regular basis are Community Action Agencies, food banks and food-shelf networks, family services at the state level, veteran organizations, and faith-based organizations. The following is a list of community organizations across Illinois who are participating in the recently-organized IL Economically Disadvantaged Energy Efficiency Stakeholder Advisory Committee, and may be effective and trusted voices to market energy efficiency programs in economically-challenged communities:

- **Community Action Agencies (“CAAs”):**
 - Illinois Association of Community Action Agencies (“IACAA”) is a member organization of CAAs, <http://www.iacaanet.org/>.
 - Two examples of agencies are the East Central Illinois CAA, <http://www.comaction.org/>, and the Madison County Community Development, http://www.co.madison.il.us/departments/community_development/.
 - A full list of CAAs in Illinois is available on the Department website.⁷¹ CAAs participating in the Committee are noted below.
 - CEFS Economic Opportunity Corporation: <http://www.cefseoc.org/>
 - Embarras River Basin Agency, Inc.: <http://www.erbainc.org/>
 - Peoria Citizens Committee for Economic Opportunity: <https://www.pcceo.org/>
 - Shawnee Development Council: <http://www.shawneedevelopment.org/>
 - South Austin Coalition Community Council
- **Housing authorities and supporting organizations:**
 - Chicago Housing Authority: <http://www.thecha.org/>
 - Illinois Housing Council: <http://www.ilhousing.org/>
 - Illinois Housing Development Authority: <https://www.ihda.org/>
 - Rockford Housing Authority: <http://rockfordha.org/>
- **Food banks and food-shelf networks:**
 - Feeding Illinois: <http://www.feedingillinois.org/>
 - Central Illinois Foodbank: <http://www.centralilfoodbank.org/>
 - Eastern Illinois Foodbank: <http://www.eifoodbank.org/>
 - Greater Chicago Food Depository: <http://www.chicagosfoodbank.org/>
 - Northern Illinois Foodbank: <http://www.northernilfoodbank.org/>
 - Peoria Area Foodbank:
https://www.pcceo.org/index.cfm?fuseaction=dep_intro&dept_id=19
 - River Bend Foodbank: <http://www.riverbendfoodbank.org/>
 - St. Louis Area Foodbank: <http://www.stlfoodbank.org/>
 - Tri-State Foodbank: <http://www.tristatefoodbank.org/>
- **Family services:**
 - Illinois Department on Aging, Area Agencies on Aging:
<https://www.illinois.gov/aging/PartnersProviders/Pages/aaa-main.aspx>
 - Illinois Action for Children: <http://www.actforchildren.org/who-we-are/>
 - Illinois Department of Human Services: <http://www.dhs.state.il.us/page.aspx>

⁷¹ See Illinois Department of Commerce and Economic Opportunity, Community Action Agencies website: <https://www.illinois.gov/dceo/CommunityServices/HomeWeatherization/CommunityActionAgencies/Pages/default.aspx>.

- Employment for Economically-Challenged Families: <http://www.dhs.state.il.us/page.aspx?item=35564>
 - Temporary Assistance for Needy Families: <http://www.dhs.state.il.us/page.aspx?item=30358>
 - Women, Infants and Children (“WIC”): <http://www.dhs.state.il.us/page.aspx?item=30513>
- American Association of Retired Persons (AARP): <http://www.aarp.org/>
- **Environmental Justice Organizations:**
 - Blacks in Green
 - Little Village Environmental Justice Organization: <http://lvejo.org/>
 - People for Community Recovery: <http://www.peopleforcommunityrecovery.org/>
- **Veteran organizations:**
 - Illinois Joining Forces: <http://illinoisjoiningforces.org/>
 - Illinois Department of Veterans’ Affairs: <https://www.illinois.gov/veterans/Pages/default.aspx>
 - Chicago Veterans: <https://chicagovets.org/>
- **Faith-based organizations:**
 - Faith in Place: <https://www.faithinplace.org/>
 - Illinois People’s Action: <http://www.illinoispeoplesaction.org/>
- **Other public entities, municipalities, organizations and non-profits:**
 - Building Research Council, University of Illinois Urbana - Champaign
 - Chicago Jobs Council: <http://cjc.net/>
 - Citizens Utility Board: <https://citizensutilityboard.org/>
 - City of Chicago: <https://www.cityofchicago.org/g/city/en.html>
 - Community and Economic Development Association of Cook County (CEDA): <http://www.cedaorg.net/>
 - Community Investment Corporation: <http://www.cicchicago.com/>
 - Cook County – Department of Environmental Control: <https://www.cookcountyil.gov/>
 - Cook County – Workers Benefit Council: <https://www.cookcountyil.gov/>
 - Delta Institute: <http://delta-institute.org/>
 - Department of Commerce and Economic Opportunity: <https://www.illinois.gov/dceo>
 - Energy Assistance Foundation
 - Enterprise Community Partners, Inc.: <http://www.enterprisecommunity.org/>
 - Environmental Defense Fund: <https://www.edf.org/>
 - Environmental Law and Policy Center: <http://elpc.org/>
 - Hispanic Housing Development Corporation: <http://www.hispanichousingdevelopment.com/>
 - Illinois Environmental Council: <http://ilenviro.org/>
 - Illinois Home Weatherization Assistance Program (IHWAP): <https://www.illinois.gov/dceo/CommunityServices/HomeWeatherization>
 - Illinois Public Interest Research Group: <http://illinoispirg.org/page/ilp/about-illinois-pirg>
 - Illinois Science & Energy Innovation Foundation: <http://www.iseif.org/>
 - Illinois State Alliance of YMCAs: <http://www.illinoisymcas.org/wp/>
 - Indoor Climate Research & Training - University of Illinois Urbana-Champaign
 - John A Logan College: <https://www.jalc.edu/>
 - Land of Lincoln Goodwill Industries: <http://llgi.org/>

- Land of Lincoln Legal Assistance Foundation: <http://lollaf.org/>
- Metropolitan Mayors Caucus: <http://mayorscaucus.org/>
- Midwest Energy Efficiency Alliance (MEEA): <http://www.mwalliance.org/>
- Moraine Valley Community College - Center for Sustainability: <https://www.morainevalley.edu/about/sustainability/>
- Natural Resources Defense Council:
- South Suburban Mayors and Managers Association: <http://ssmma.org/>
- Southwestern Illinois College: <http://www.swic.edu/>
- Union of Concerned Scientists: <http://www.ucsusa.org/>
- Village of Beach Park: <https://www.villageofbeachpark.com/>
- **Program implementers with experience in economically-challenged and public sectors:**
 - 360 Energy Group: <http://360eg.com/>
 - Chicago Bungalow Association: <http://www.chicagobungalow.org/>
 - Domus Plus
 - Elevate Energy: <http://www.elevateenergy.org/>
 - Energy Resource Center, UIC: <http://www.erc.uic.edu/>
 - Smart Energy Design Assistance Center (SEDAC): <https://smartenergy.illinois.edu/>

B. Economically-Challenged Measure Potential in Illinois

The following measures were identified in the ERC potential study as top opportunities for the economically-challenged sector for program years 2017-2022. This measure potential is similar to recommendations identified for economically-challenged programs nationally.

- **Lighting:** Lighting will remain an important component to economically-challenged programs due to the high savings potential and lower cost. Single-family customers will benefit from screw-in CFL and LED bulb and fixture upgrades, while multi-family customers will benefit from upgrades to linear fluorescent lighting and controls. While CFLs are being phased out, the improvements in technology and reduction in the cost of LEDs make them an increasingly viable option for economically-challenged customers.
- **HVAC:** Both gas and electric savings can be achieved from HVAC upgrades. Due to a higher percentage of economically-challenged customers with electric heating systems in both single-family and multi-family homes, heat pump systems are an important consideration due to the high savings potential and reasonable cost for heating and cooling. For customers with natural gas heating, furnace and boiler upgrades have a high potential in both single-family and multi-family homes, however, the cost would be considered insurmountable without sufficient incentives and financing. Programmable thermostats in both single-family and multi-family, and boiler controls in multi-family settings, can provide both gas and electric savings, while the more expensive smart thermostats are priced too high to likely be a viable option for this customer segment. Smart thermostats could be a viable option when all potential incentives are combined, significantly decreasing the overall cost.
- **Weatherization:** Weatherization remains an important measure for the economically-challenged segment. However, due to recent changes in the Illinois Technical Reference Manual that reduced the savings potential for air sealing and insulation, weatherization programs will need to be monitored and potentially adapted to remain cost effective.
- **Hot water measures:** Some natural gas and electric savings can be achieved from hot water measures, including water heater upgrades, faucet aerators, showerheads and pipe insulation.⁷²

⁷² Baker, 2016: Illinois Public Sector and Low Income Housing Energy Efficiency Potential Study: 2017 – 2022 forecast.

- **Appliances:** Economically-challenged households use more energy (kWh) on appliances than non-economically-challenged households, so programs that target high-energy using old and inefficient appliances should be considered.

Customer Findings

A. Key Findings for All Economically-Challenged Customers

Based on utility program experience in other jurisdictions, the seven findings outlined below apply to the majority of economically-challenged customers, regardless of whether they live in single-family or multi-family dwellings, or rent or own their home.

1. Extremely economically-challenged customers have a limited ability for co-pay.⁷³

Extremely economically-challenged customers face challenges providing a co-pay for completing an energy efficiency upgrade. Free offers that are “zero cost” to the customer are ideal, especially those that are intended to be an initial engagement strategy (e.g., direct-install measures, a do-it-yourself energy saving measures kit, home assessment). Up-front discounts, rather than cash-back after the customer pays for a project, as well as support for obtaining financing are essential to limit out-of-pocket costs to customers.

2. Low-to-moderate income customers have ability for co-pay but still need enhanced incentives.⁷⁴

For low-to-moderate income customers, a small co-pay may be possible, but should be minimized or offset with other funding. A detailed and accurate explanation of the potential utility savings should be provided to customers. The Focus on Energy programs have been successful providing “enhanced” incentives to low-moderate customers, with co-pays.⁷⁵

3. Economically-challenged customers may have unpaid utility bills and therefore may be fearful of and ignore utility communications.⁷⁶

Economically-challenged customers of all ranges indicate they will prioritize other necessities, such as rent, food, medications, etc., over paying utility bills when necessary. This issue may impact customers’ perception of the utility if they have unpaid bills or have missed payments in the past, resulting in customers disregarding energy efficiency program marketing and promotions sent by utilities.

⁷³ Cluett, 2016: Building Better Energy Efficiency Programs for Low-Income Households; Shoemaker, 2016: Best Practices in Developing Energy Efficiency Programs for Low-Income Communities and Considerations for Clean Power Plan Compliance.

⁷⁴ Cluett, 2016: Building Better Energy Efficiency Programs for Low-Income Households; Shoemaker, 2016: Best Practices in Developing Energy Efficiency Programs for Low-Income Communities and Considerations for Clean Power Plan Compliance.

⁷⁵ Focus on Energy Evaluation Report 2014 – Volume II. Retrieved from: <https://focusonenergy.com/about/evaluation-reports>; Focus on Energy Residential Rewards and Enhanced Rewards Website: <https://focusonenergy.com/residential/efficient-products-appliances/residential-rewards>; Focus on Energy Home Performance with ENERGY STAR Website: <https://focusonenergy.com/residential/efficient-homes/home-performance-energy-star>; and Income Eligible Residents, Focus on Energy Website: <https://focusonenergy.com/residential/income-eligible-residents>.

⁷⁶ Cluett, 2016: Building Better Energy Efficiency Programs for Low-Income Households.

4. Economically-challenged customers have difficulty qualifying for financing through traditional means.⁷⁷

Many economically-challenged customers have lower credit scores and greater debt-to-income ratio, which makes obtaining financing very difficult. High-interest loans have a greater financial burden on economically-challenged customers as well, making available financing options less appealing. However, using bill payment history as an alternative to credit score has expanded the ability of economically-challenged and low-moderate income customers to receive financing.

5. Economically-challenged customers have a limited understanding of program benefits so must receive accurate and detailed information about bill savings compared to the cost of measures and other services (such as audits).⁷⁸

The economically-challenged customer segment is more likely to lack an understanding of energy efficiency upgrades and their saving potential. Customers are often unaware of the potential cost savings they could achieve on their bills and lack confidence that upgrades will result in actual bill savings.

6. There are communication barriers to reaching economically-challenged customers.⁷⁹

Engaging with the economically-challenged customer segment has proved challenging for many utilities and program implementers. Five key barriers emerged from the research completed for this report:

- a. Language can often be a barrier, especially in metropolitan areas, due to the number of languages spoken and limited bilingual staffing among utility energy efficiency program and implementation staff.
- b. Economically-challenged customers often have a distrust of organizations they are unfamiliar with, especially when a home visit is involved. While customers are often aware of who their utility is, they may not have had positive experiences in the past, or have heard of the potential for scams. Many customers are wary of “free offers” regardless of their income level; this hesitation should also be considered with respect to economically-challenged customers.
- c. Economically-challenged customers often have limited time to engage with energy efficiency program representatives compared to non-economically-challenged customers. Economically-challenged customers are more likely to work longer hours or hold multiple jobs. These customers may also be averse to speaking with representatives of their utility if they have had problems paying their bills or have had their service disconnected in the past.
- d. Economically-challenged customers often have limited visibility to existing energy efficiency program offerings. This may be due to different purchasing behaviors, such as point-of purchase promotions. For example, economically-challenged customers often purchase non-ENERGY STAR or non-rebate qualifying appliances if they are purchased new and may purchase or acquire previously-owned appliances when a replacement is needed.
- e. The economically-challenged customer segment is much more likely to communicate or interact with trusted organizations or individuals in their communities, instead of with their utility.

⁷⁷ Barrett, 2016: Lending for Energy Efficiency Upgrades in Low- to Moderate-Income Communities: Bank of America’s Energy Efficiency Finance Program.

⁷⁸ Cluett, 2016: Building Better Energy Efficiency Programs for Low-Income Households.

⁷⁹ Cluett, 2016: Building Better Energy Efficiency Programs for Low-Income Households; Shoemaker, 2016: Best Practices in Developing Energy Efficiency Programs for Low-Income Communities and Considerations for Clean Power Plan Compliance.

7. Utility bill savings from energy efficiency are more impactful.⁸⁰

Due to paying a higher percentage of their household income on utilities, the utility cost savings from energy efficient upgrades are more impactful for economically-challenged customers compared to customers with income above that threshold. Any cost saving, no matter how small, is a higher percentage of an economically-challenged customer's overall income, providing greater benefits than similar savings achieved by a non-economically-challenged customer. It is important to note that economically-challenged customers on average have lower overall utility costs, but higher costs per square foot, which indicates customers have less efficient and smaller homes.

8. Economically-challenged customers often need additional home repairs.⁸¹

Economically-challenged customers generally live in older, less efficient homes. Additional home repair needs that may be required beyond energy efficiency upgrades include roof repairs, mold abatement, and appliance repair. These repairs may be seen as more essential or more feasible than an energy efficiency upgrade or product replacement. As a result, homes may require health and safety repairs before energy efficiency upgrades can be installed. These and other expenses compete with a customer's financial ability to complete an energy efficiency upgrade, and can delay or ultimately prohibit the customer's ability to complete even a free energy efficient upgrade. Further research needs to be done to establish an appropriate budget for health and safety repairs that may be funded through efficiency funds.

The Chicago Bungalow Association is the program implementer of the Energy Savers Grant program for Peoples Gas and ComEd in the City of Chicago. The Association has indicated that in their experience, fifty percent of potential energy efficiency program candidates do not move forward as a result of necessary home repairs.⁸²

9. Income qualification process should be streamlined as much as possible.

Single-family residents must typically individually qualify, based on income, for enhanced incentives, and generally do not qualify based on the location of the residence in an economically-challenged census tract. In contrast, income qualification for multi-family properties is sometimes based on the census tract where the multi-family property is located due to the difficulty of individually qualifying the income of all residents in a multi-family dwelling (unless the multi-family dwelling is subsidized housing). However, income qualification for single-family residents should be streamlined so that it is not a barrier to participation. Examples of streamlined documentation are to qualify income based on the last three months of pay-stubs or the prior year's tax return.

9. Single-Family Rental Properties: Special Considerations

Economically-challenged programs include three very different types of participants: 1) Owners residing in the home, 2) Tenants/renters and 3) Property managers. Many of the differences between these participants and challenges for energy efficiency programs are independent of income level and thus have not been fully outlined here.

⁸⁰ Cluett, 2016: Building Better Energy Efficiency Programs for Low-Income Households.

⁸¹ Cluett, 2016: Building Better Energy Efficiency Programs for Low-Income Households.

⁸² Personal communication, Mary Ellen Guest, Chicago Bungalow Association, with Annette Beitel, May 22, 2017.

Single-family and multi-family homeowners are important participants of economically-challenged programs. These customers are fully responsible for home repairs and utility costs, and will achieve significant benefit from home improvement projects that may have been deferred. Homeowners have likely resided in their homes for some time, and thus may have a deeper connection to their communities and organizations that support economically-challenged customers, making them easier to reach through community partnerships.

Renters have specific needs when being engaged by energy efficiency programs, regardless of income level. As renters do not own the property, there are limitations on the types of upgrades or improvements that they can approve or control. For renters, an emphasis on behavioral modifications and in-unit measures may be most effective. Additionally, if their utilities are included in their rent, there is little motivation to save energy as they do not see the benefit of the cost reduction. Programs can instead engage renters on the benefit of improving comfort or aesthetics in their homes, or the environmental benefit of saving energy. Consideration should also be made regarding access to this type of customer and their rental units, as they may be less trusting of requests to enter their home. Renters may also be more transitory, and not as tied into their communities and organizations that otherwise help reach economically-challenged customers. Utilities should consider dedicated outreach to property managers on comprehensive energy efficiency program offerings rather than renters, with focused messages on the benefits available to both owners and their residents.

B. Multi-Family-Specific Findings

The primary considerations for dedicated multi-family programs are the measures applicable to the building type, and who is responsible for paying for both the upgrade and the utility bill. Both rental properties and owner-occupied properties are further explored below. Additional resources on multi-family program design are included in the References section at the end of this report.

Population data reviewed for this report indicates there is substantial opportunity for utilities to offer owner-occupied energy efficiency programs to benefit the economically-challenged customer segment. Approximately 40 percent of these customers own their homes, which are primarily single-family residences. Of economically-challenged owners in Chicago, 80 percent own single-family properties and 20 percent own multi-family properties.⁸³ The majority of economically-challenged residents rent (61 percent in the Chicago metro area and 59 percent in Midwest). Of economically-challenged renters in Chicago, 25 percent live in single-family properties and 75 percent live in in multi-family properties.⁸⁴ In reviewing data from the 2015 American Housing Survey, there are four conclusions that can be drawn on multi-family housing:

1. In comparison to the Illinois average, more economically-challenged residents live in multi-family housing than single-family housing specifically in the Chicago metro area (approximately 50 percent).
2. The Midwest average for multi-family housing is still higher than the national average, implying non-Chicago metro residents live in higher number of multi-family units and the Illinois average is not entirely skewed by the City of Chicago.
3. Lower income potentially indicates a higher likelihood of living in multi-family over single-family homes, with the exception of very economically-challenged, which has slightly higher percentage in single-family homes compared to the economically-challenged segment.

⁸³ Of economically-challenged owners in the Midwest, 94 percent own single-family properties and 6 percent own multi-family properties. See American Housing Survey, 2015.

⁸⁴ Of economically-challenged renters in the Midwest, 38 percent live in single-family properties and 62 percent live in in multi-family properties. See American Housing Survey, 2015.

4. Significant opportunities for energy efficiency upgrades exist for both single-family and multi-family homes across all economically-challenged ranges throughout the state of Illinois.

The findings outlined below apply to the majority of economically-challenged customers living in multi-family residences.

1. Additional engagement and project management support is needed.⁸⁵

Due to more limited staffing resources, multi-family properties often require greater support to navigate the qualification, assessment, selection and installation process required for participation in energy efficiency programs. For example, property managers for multi-family residences often require assistance to verify eligibility and complete the application process. Like many non-economically-challenged multi-family property managers, economically-challenged multi-family property owners and managers also need effective education on energy-saving opportunities, benefits, savings potential and the payback period for energy efficiency upgrades.

2. Consider existing customer qualification standards for multi-family programs.⁸⁶

Utilities should consider qualifying multi-family properties by verifying whether they meet the participation requirements for other income-eligible federal or state programs. For example, the Weatherization Assistance Program (“WAP”) qualifies multi-family properties based on 66 percent of building residents meeting income eligibility.⁸⁷ If a multi-family property has previously participated in WAP or otherwise has gone through their qualification process, that property should automatically qualify for utility energy efficiency programs.

3. Income eligibility and verification should be streamlined.⁸⁸

Income verification processes are a barrier to participation for many multi-family properties. Property owners and managers are discouraged from participation if the process is cumbersome or if eligibility requirements are not aligned with other income eligibility criteria.⁸⁹ Many successful economically-challenged energy efficiency programs have offered incentives to all multi-family properties within a specific region with a high percentage of economically-challenged residents identified by census tract data, rather than qualifying by building via individual residents, which removes the eligibility barrier. However, consideration should be given to neighborhoods with a wide range of income levels to avoid qualifying a multi-family building with a high percentage of tenants that do not meet income eligibility standards.

⁸⁵ Johnson, 2013: Apartment Hunters: Programs Searching for Energy Savings in Multifamily Buildings. Energy Efficiency For All, 2015: Program Design Guide: Energy Efficiency Programs in Multifamily Affordable Housing.

⁸⁶ Johnson, 2013: Apartment Hunters: Programs Searching for Energy Savings in Multifamily Buildings. Energy Efficiency For All, 2015: Program Design Guide: Energy Efficiency Programs in Multifamily Affordable Housing.

⁸⁷ See https://portal.hud.gov/hudportal/documents/huddoc?id=fsweather_proc_mf_building.pdf. “WAP Eligibility: Multifamily buildings are eligible if 66% of the dwelling units in the building (50 percent if fewer than 5 units) meet WAP’s income eligibility requirement of 200 percent below poverty. If a multifamily building meets the eligibility requirement, the entire building may be weatherized. This means that insulating the entire building shell and other envelope improvements, upgrading central heating systems and common areas are eligible measures, provided they meet the DOE cost-benefit requirements. NOTE: Building owners must determine and communicate how they will pass the benefits of weatherization services on to residents. Building owners may need to provide documentation and verification that tenants are protected against rent increases that are directly related to the weatherization work. (Applies to HUD supported properties with less than 3 years remaining on affordability agreement, as well as LIHTC and USDA properties).”

⁸⁸ Johnson, 2013: Apartment Hunters: Programs Searching for Energy Savings in Multifamily Buildings. Energy Efficiency For All, 2015: Program Design Guide: Energy Efficiency Programs in Multifamily Affordable Housing.

⁸⁹ Harak, 2013: Partnering for Success: An Action Guide for Advancing Utility Energy Efficiency Funding for Multifamily Rental Housing.

4. Affordable housing renters incur higher utility costs per square foot.⁹⁰

On a per square foot basis, multi-family affordable housing renters tend to pay more per square foot for gas and electric utilities. Higher costs are often due to the condition of the property and heating and cooling systems, including a lack of air sealing and insulation and controls. Other factors specific to multi-family properties may also contribute to higher costs, such as common area energy usage, greater resident density and metering arrangements.

A recent Energy Efficiency for All study identified the following findings on energy use in rented multi-family units: “energy expenditures run 37 percent higher per square foot than in owner-occupied multi-family units (e.g. condos or co-ops), 41 percent higher than in rent-occupied single family detached units, and 76 percent higher than in owner-occupied single family detached units.”⁹¹

5. Benchmarking is an effective tool.

HUD has encouraged multifamily properties, with an emphasis on Public Housing Authorities (“PHAs”), to use the ENERGY STAR[®] Portfolio Manager[®] tool for analyzing and benchmarking the energy use of properties. The Portfolio Manager[®] tool allows the Public Housing Authority to review and track usage data, compare energy use between buildings, target improvements to reduce energy consumption and costs, and determine the effectiveness of energy improvements. The tool is available on the ENERGY STAR website.⁹² Energy efficiency programs should leverage the tool, as properties may already be familiar with it. Program administrators may find support within PHAs for its use.

6. Multi-family rental units have unique considerations.

The ERC potential study found similar considerations for the multi-family customer segment compared to single family customers. Due to the prevalence of residents not paying directly for utilities, to best reach tenant-occupied units, direct install programs should be utilized. Financial incentives should be limited to property owners, however owners may have limited budgets for upgrades.⁹³ Educational initiatives may be used to help reduce natural gas usage with space heating systems within individual tenant units. In order to move property managers to replace existing boilers, significant financial incentives would be required. Tune-ups and controls should be considered lower-cost options.⁹⁴

Specific to affordable multi-family housing, Energy Efficiency For All (“EEFA”) found significant saving opportunities in Illinois. With energy efficiency improvements, affordable multi-family housing has the potential to reduce electric usage by 26% and gas usage by 21%. In addition, EEFA found that for every dollar invested in energy savings, \$3.50 in benefits would be realized. The EEFA study highlights non-energy benefits that are important to this customer segment, including reduced bill arrearages, reduced customer calls and collection activities, reduced safety-related emergency calls, improvements in residents’ health, increased resident comfort, and increased housing property values.⁹⁵

⁹⁰ Energy Efficiency For All, 2015: Program Design Guide: Energy Efficiency Programs in Multifamily Affordable Housing.

⁹¹ Energy Efficiency For All, 2015: Program Design Guide: Energy Efficiency Programs in Multifamily Affordable Housing.

⁹² See EPA website: <https://www.energystar.gov/buildings/facility-owners-and-managers/existing-buildings/use-portfolio-manager>.

⁹³ Baker, 2016: Illinois Public Sector and Low Income Housing Energy Efficiency Potential Study.

⁹⁴ Baker, 2016: Illinois Public Sector and Low Income Housing Energy Efficiency Potential Study.

⁹⁵ Energy Efficiency For All, 2015: Program Design Guide: Energy Efficiency Programs in Multifamily Affordable Housing.

C. Subsidized multi-family housing findings.

Subsidized multi-family housing, also referred to as assisted or publicly assisted housing, has several unique and specific challenges that need to be considered in planning economically-challenged energy efficiency programs in Illinois.

1. Regulatory obstacles are barriers to participation.

There are two regulations in place that impact subsidized housing which can be seen as barriers to energy efficiency program participation. First, owners are restricted on how and when capital reserves can be used to pay for improvements. Second, there are regulations on how much rents may be raised, inhibiting a building owner's ability to recoup the cost of such investments.⁹⁶

2. Utility allowances impact incentive to reduce energy.

By receiving allowances from the U.S. Department of Housing and Urban Development ("HUD") to pay for utilities, tenants have little incentive to reduce energy use in multi-family properties as a reduction in cost would reduce the allowance received. In certain situations, the building owner receives the allowance instead of the tenant. When utility costs are reduced, the HUD allowance is adjusted, impacting the building owner's ability to realize a return on investment for the improvements.⁹⁷

In both scenarios, the cost savings from energy saving improvements reduce the cost to HUD, rather than the tenant or building owner. The benefit to HUD is often seen as counter to the goal of reducing costs to the economically-challenged customer, and thus should not be funded through rate-payer dollars.⁹⁸

3. Coordination with Other Agencies and Membership Organizations is Key

State Housing Finance Agencies ("HFAs") administer a variety of affordable housing and community development programs. HFAs work with economically-challenged multi-family properties, administering funding for and assisting with capital improvement projects. Due to the complex nature of improvements within affordable multi-family housing, energy efficiency programs benefit from partnering with HFAs, which can provide access to properties that are in a position to participate.⁹⁹

Additionally, multi-family economically-challenged properties in Illinois are often members of, or engage with, membership organizations on a regular basis. Key organizations specific to Illinois include:

- *Illinois Association of Housing Authorities*: The Illinois Association of Housing Authorities ("IAHA") was formed to unite the housing authorities in the State of Illinois to use its resources to evaluate, educate, exchange ideas, and address the membership's individual and collective needs. The Association advocates for funding and policies, regulations and legislature that

⁹⁶ Johnson, 2013: Apartment Hunters: Programs Searching for Energy Savings in Multi-Family Buildings.

⁹⁷ Johnson, 2013: Apartment Hunters: Programs Searching for Energy Savings in Multifamily Buildings. Energy Efficiency For All, 2015: Program Design Guide: Energy Efficiency Programs in Multifamily Affordable Housing.

⁹⁸ Harak, 2013: Partnering for Success: An Action Guide for Advancing Utility Energy Efficiency Funding for Multifamily Rental Housing; Energy Efficiency For All, 2015: Program Design Guide: Energy Efficiency Programs in Multifamily Affordable Housing.

⁹⁹ Harak, 2013: Partnering for Success: An Action Guide for Advancing Utility Energy Efficiency Funding for Multifamily Rental Housing.

assists its members in carrying out this mission of providing decent, safe and sanitary housing to the tens of thousands of clients its' members serve.¹⁰⁰

- *The Illinois Housing Council*: Statewide non-profit organization, created to promote the stabilization of Illinois communities through the construction and preservation of affordable housing. IHC members include owners, property managers, developers, financial institutions, builders, subcontractors, government officials, lenders, accountants, market analysts, consultants, civic organizations, and many others.¹⁰¹
- *Housing Action Illinois*: Statewide coalition formed to protect and expand the availability of quality, affordable housing throughout Illinois. Members include housing counseling agencies, homeless service providers, developers of affordable housing and policymakers.¹⁰²
- *Midwest Affordable Housing Management Association*: A professional association representing owners and managers of affordable housing throughout Indiana, Illinois, Ohio, Michigan, Minnesota and Wisconsin.¹⁰³
- *Chicago Rehab Network*: A citywide coalition of neighborhood and community based development organizations founded in 1977 by community groups seeking to pool expertise and share information. The coalition membership consists of over 40 housing organizations representing over 60 city neighborhoods.¹⁰⁴
- *Supportive Housing Providers Association*: Statewide (Illinois) membership association of non-profit providers of supportive housing (affordable housing plus services for individuals and families who have been homeless and/or have special needs).¹⁰⁵
- *Preservation Compact*: Brings together the region's public, private, and nonprofit leaders to preserve affordable multifamily rental housing in Cook County.¹⁰⁶
- *National Low Income Housing Coalition*: The goal of this Coalition is to preserve existing federally assisted homes and housing resources, expand the supply of economically-challenged housing, and establish housing stability as the primary purpose of economically-challenged housing policy.¹⁰⁷ The Coalition includes the following organizations, in addition to individual property managers (not listed):
 - Bickerdike Redevelopment Corporation
 - Chicago Alliance to End Homelessness
 - Chicago Community Loan Fund
 - Chicago Rehab Network
 - Community Investment Corporation
 - Habitat For Humanity of Champaign County
 - Housing Action Illinois
 - Housing Authority of Cook County
 - Illinois Housing Council
 - Illinois-Iowa Center for Independent Living
 - Metropolitan Tenants Organization
 - Moline Housing Authority

¹⁰⁰ See Illinois Association of Housing Authorities website: <http://iahaonline.org/>.

¹⁰¹ See Illinois Housing Council website: <http://www.ilhousing.org/>.

¹⁰² See Housing Action Illinois website: <http://housingactionil.org/>.

¹⁰³ See Midwest Affordable Housing Management Association website: <http://mahma.com/>.

¹⁰⁴ See Chicago Rehab Network website: <http://www.chicagorehab.org/aboutCRN/index.htm>.

¹⁰⁵ See Supportive Housing Providers Association website: <http://www.shpa-il.org/>.

¹⁰⁶ See Preservation Compact website: <http://www.preservationcompact.org/>.

¹⁰⁷ See National Low Income Housing Coalition website: <http://nlihc.org/>.

Section 5: Recommendations

This section summarizes key recommendations for utilities offering economically-challenged energy efficiency programs in Illinois following the review of studies, reports, and successful energy efficiency programs serving economically-challenged and low-moderate income customers across the country. There are numerous considerations that should be taken into account by utilities, stakeholders and the IL EE SAG economically-challenged advisory committee in the next four-year energy efficiency portfolio cycle. Recommendations in this section are organized into two categories; communication and outreach recommendations and program design recommendations. Key recommendations include the following: Additional research needs and issues to consider in the future are summarized in Section 6, Outstanding Questions.

A. Communication and Outreach Recommendations

1. Engage with Trusted Voices in the Community

It is important for utilities to engage with trusted voices in the community to ensure successful economically-challenged programs. Community-based organizations that have existing relationships with or better access to economically-challenged customers are essential for successful energy efficiency program outreach. Traditional marketing and outreach by utilities often does not reach economically-challenged customers due to either distrust of the utility or a disinterest in utility solicitations. Community-based organizations are well suited to engage customers, educate them on the benefits of energy efficiency, and assist in signing customers up for programs.

The DTE Energy Low-Income Energy Efficiency Assistance Program is summarized in Section 3 of this report as a notable program. DTE Energy identified several challenges to serving economically-challenged customers, including attracting participants, using effective communication channels, and addressing language barriers. DTE Energy recommends partnering with appropriating agencies and reviewing partnerships on a regular basis to identify new players.

Utilities should engage with local organizations that have relationships with and interact with economically-challenged customers on a regular basis. Utilities need to ensure that local organizations receive information on economically-challenged energy efficiency programs and understand how to communicate offerings to eligible customers. Community organizations that should be considered for partnerships with economically-challenged energy efficiency programs include Community Action Agencies, food banks and “food-shelf” networks, veteran organizations, Illinois Department on Aging and area agencies on aging, faith-based organizations, Illinois Action for Children, Illinois Department of Human Services, employment services, local Family Community Resource Centers, and other local organizations such as YMCAs. Utilities should designate a key contact to work with local organizations to ensure a successful relationship. Key local organizations should also be included as participants in the IL EE SAG economically-challenged advisory committee.

2. Leverage Existing Utility Assistance Programs

Utility-based assistance programs, which are already engaged with select economically-challenged customers, can be effective at engaging customers on energy efficiency programs as they already have an established relationship with the utility. However, there are limitations of offering or engaging customers only through existing programs, as not all eligible economically-challenged customers may be participating. Utility-based assistance programs may have different income eligibility requirements,

or only select customers may be participating, which excludes a portion of the eligible economically-challenged population.

3. Conduct Outreach by Neighborhood or Community

The Duke Energy Neighborhood Energy Saver Program is summarized in Section 3 of this report as a notable program. This program has achieved success with economically-challenged customers by utilizing effective communication strategies (communicate early and often; face to face) and targeting customers for participation in a unique way. Eligible customers are targeted by neighborhood for participation in the Neighborhood Energy Saver Program. This allows the utility to focus on a specific area within the community. Illinois utilities should consider a similar approach as it has proven to be an effective strategy to reach a large number of customers in a short timeframe and may reduce costs to the program. Pre-screening and recruitment prior to the program launch may also be an effective way to reach customers.

4. Utilize Consistent Messaging, Marketing and Branding Which Resonates with the Economically-Challenged Community

Due to the engagement with community-based organizations throughout the state, which often operate across utility territories, various utility programs can benefit from using consistent messaging, terminology and branding of program offers to minimize confusion for participants and partner organizations. Utilities should leverage a joint or coordinated marketing and outreach approach wherever possible to more broadly reach the community, leverage best practices across the state and reduce costs. The economically-challenged community can be distrustful of utilities and community-based organizations will be more successful at engaging customers by using non-utility specific branding.

5. Develop a Comprehensive Energy Education Initiative

Utilities should include energy education to help economically-challenged customers manage their energy use and achieve the greatest benefit from participating in energy efficiency programs. A comprehensive education initiative should be developed in coordination with local community organizations. Utilities should continue to educate customers throughout the process of participating in a program – this ranges from understanding the financial benefits of various energy efficiency upgrades to identifying additional benefits that are important to customers. Additional benefits include increased home value, increased comfort, and environmental considerations.

6. Coordinate with Multi-Family Membership Organizations

Multi-family economically-challenged properties in Illinois are often members of, or engage with, membership organizations on a regular basis. Key multi-family memberships organizations specific to Illinois are listed in Section 4 of this report. Utilities and the IL EE SAG economically-challenged advisory committee should connect with these organizations in planning and addressing implementing issues for economically-challenged multi-family programs.

7. Develop a Plan to Support Job Creation Through EE Funds

Energy efficiency programs result in positive economic impacts to the community as well as financial and quality of life benefits to participating customers through lower bills and increased home comfort.

Utilities should coordinate with community organizations to develop a plan to support job creation within the communities that are served by economically-challenged energy efficiency programs.

There are three examples of initiatives and collaborations that Illinois utilities and stakeholders can learn from:

- a. **ConEdison partnership with Green City Force:** Con Ed has partnered with the non-profit organization Green City Force to develop a pipeline of employment for residents of the New York City Housing Projects to do energy efficiency related work. Minority-owned and women-owned business enterprises (MWBES) are making commitments to hire graduates of the Green City Force program and the first group of graduates has been hired. Working with the New York/New Jersey chapter of the National Minority Supplier Development Council, ConEd co-sponsored a major “Sustainability Summit.” This conference was organized with the purpose of identifying and promoting companies that foster a green supply chain and promote energy efficiency. Participants included representatives from major corporations, and investors interested in supporting the growth of companies in this field.
- b. **Emerald Cities Collaborative (“ECC”):** ECC is “a national nonprofit network of organizations working together to advance a sustainable environment while creating high-road -- sustainable, just and inclusive -- economies with opportunities for all. ECC develops energy, green infrastructure and other sustainable development projects that not only contribute to the resilience of metropolitan regions but also ensure an equity stake for economically-challenged communities of color in the green economy. This includes developing the economic infrastructure for family-supporting wages and career paths for residents of such communities, as well as contracting opportunities for women, minority and other disadvantaged businesses.”¹⁰⁸ One mission of ECC is to support local economies through training, jobs and labor standards. Partners that may be interested in energy efficiency include ACEEE, Building Owners and Managers Association (“BOMA”) International, and the U.S. Green Building Council.¹⁰⁹
- c. **Green For All:** Green For All is a Dream Corps initiative that began in 2008. The organization works to “build an inclusive green economy strong enough to lift people out of poverty. The goal is to make sure people of color have a place and a voice in the climate movement. That neighborhoods are strong, resilient, and healthy. That as the clean energy economy grows, it brings jobs and opportunity to underserved communities.”¹¹⁰

B. Program Design Recommendations

1. Actively and Regularly Solicit Input from Leaders and Communities on How Best to Serve Them; Incorporate Feedback and Tailor Programs So That Programs Both Achieve Required Savings Goals but Also Meet the Wants and Needs of the Communities

Economically challenged communities don’t want to be passive customers of utility-designed programs – they want to be actively engaged in shaping the programs to meet community wants and needs, which may include job development, addressing health and safety issues, and using trusted voices in the community to educate residents and market programs rather than traditional utility channels.

¹⁰⁸ See Emerald Cities Collaborative, “The Organization”: <http://emeraldcities.org/about/the-organization>.

¹⁰⁹ See Emerald Cities Collaborative, “Our Partners”: <http://emeraldcities.org/our-partners>.

¹¹⁰ See Green For All: https://www.greenforall.org/about_us.

2. Design and Implement the Programs and the Portfolio Thoughtfully and Creatively to Maximize Benefits That Flow Back to the Economically-Challenged Communities

For every dollar spent, consider how the funds can produce maximum benefits in the community. Considerations include using local resources for marketing, outreach and installation, minimizing program administrative and implementation costs, and trying to achieve multiple benefits through program design and delivery – producing non-energy as well as energy benefits. In addition, consider focusing efforts in discrete communities to produce community development rather than just benefits to individuals who receive treatments.

Consider directing other programs dollars, not ear-marked for “economically-challenged programs” to economically-challenged communities. Examples of such “non-allocated” funds include market transformation, research and development, emerging technology, pilots, direct install programs, education programs, “kits,” product buy-downs (such as upstream lighting and appliance programs and retail product programs more generally) and even program evaluation dollars. The funds that serve economically-challenged communities can be expanded beyond the allocated “economically-challenged” funds if by targeting “non-economically-challenged” programs that would be effective in economically-challenged communities to those communities.

3. Offer a Comprehensive and Dual-Fuel, But Flexible, Portfolio of Measures

Utilities should offer a wide variety of measures, including gas, electric and dual-fuel measures, in a comprehensive platform of programs (a “one stop shop”) to effectively engage economically-challenged customers. By offering joint programs, gas and electric utilities can maximize savings for the customer and achieve the greatest cost-effectiveness. Customers will be best served by a single touch-point if they have separate gas and electric utilities, which reduces barriers to participation, offers a streamlined experience and includes a variety of options for energy savings.

Utilities should consider the following categories of measures for economically-challenged programs:

- a. Weatherization: Continues to be greatest opportunity.
- b. Direct Install: Including water-saving measures and lighting.
- c. HVAC, Water Heating Upgrades: Both gas and electric; thermostats.
- d. Lighting: Multi-family retrofits and direct distribution.
- e. Appliances: Refrigerators, washers/dryers and window air-conditioning units, as fewer economically-challenged customers have central air conditioning.
- f. Behavioral: Provides an opportunity for energy education and energy savings.

Utilities should continue to evaluate new measures and technologies on a regular basis to determine if they are a right fit for economically-challenged customers.

4. Tailor Incentive Levels to Customer Income

When designing economically-challenged energy efficiency programs in Illinois, it is important for utilities to consider the different attributes of extremely low income, low income and low-moderate income customers. Programs should be tailored to benefit each type of customer. Considerations for the three categories of economically-challenged customers are summarized below.

Extremely Low to Very Low Income Customers

- Customers with the greatest hardship will be best served by free assistance and upgrades that are easy to complete, with no co-pay.
- Customers will experience the greatest benefit from any utility bill savings, even those that other customers may consider insignificant.
- Customers are more likely to be currently enrolled or participating in another income-qualifying program within their community.
- Customers are least likely to qualify, or be comfortable taking on, financing.

Low Income Customers

- Customers may be open to a broader range of offers, including entirely free product installs and retrofits, and projects that require a portion to be financed, as long as support is provided to obtain financing.
- Customers in this segment are likely to be current participants of other income-qualifying programs, therefore have a higher level of trust with local and community-based organizations offering assistance.

Low-to-Moderate Income Customers

- Low-to-moderate income customers will likely be more willing to pursue financing for projects that may not be seen as “critical,” e.g., a weatherization project in comparison to replacing a failed furnace.
- Customers are least likely to be engaged in another income-qualifying program, and may not self-identify as “low-to-moderate income.”

In light of the considerations outlined above, utilities should offer a tiered approach to effectively reach all economically-challenged customers. For example, full costs should be covered for extremely low income customers, however low income to low-moderate income customers may be able to fund a portion of a project or obtain financing to cover costs. The amount of co-pay a customer can bear varies by income range:

- **Extremely Low Income / Very Low Income / Public Housing Authorities:**
 - Must be 100% free to customer, which may leverage other funding sources.
- **Low Income:**
 - Ideally free to customer.
 - Must cover at least 100% of the incremental cost.
- **Private Affordable/Assisted Housing:**
 - Enhanced incentives.
 - Does not need to be free as these customers often have access to financing or funds to contribute.
- **Low to Moderate Income:**
 - Greater than standard incentives but does not have to be free if the improvement being made is considered “essential.” For example, a customer may need to replace a failed or failing HVAC system and be able to fund some of the cost. However, this customer segment may be less likely to pay for a weatherization project if they do not believe it to be necessary or do not have confidence their utility costs will be reduced.

To reduce the customers’ amount of out-of-pocket cost, all incentives or a significant portion should ideally be provided up-front. Some of the more moderate segments, or multi-family properties that have better access to financing, can bear to receive a portion up-front and the remainder at the

conclusion of the project. However, the economically-challenged homeowners will be better served by grants or up-front incentives, rather than a reimbursement or post-project incentive, even if a guarantee is provided.

Due to limited income, for projects that require a customer contribution, improvements should be pursued over time to spread out costs, especially if financing is not available or is costly. If financing is available, if a larger loan can be obtained, bundling improvements is recommended.

5. Adjust Measure Baseline to Existing Conditions

For deemed savings, measure baselines should be adjusted for economically-challenged households due to the fact that older equipment with lower efficiency ratings exist in many economically-challenged residences.¹¹¹ This better reflects the reality of customer homes and will allow utilities to claim additional savings for economically-challenged programs.

6. Include Funds to Address Health and Safety Issues

Health and safety issues can be a barrier to energy efficiency program participation for economically-challenged customers, due to older housing stock and the inability of customers to afford necessary upgrades to their residences. Utilities should have an established plan to address health and safety issues that arise during participation in energy efficiency programs. For example, a roof leak issue may be uncovered during weatherization upgrades. Utilities should coordinate with each other and with the IL EE SAG income qualified advisory committee to ensure these issues are appropriately addressed. Utilities should also coordinate with local community organizations that may be able to help identify additional funds for repairs related to health and safety.

A recent study on economically-challenged energy efficiency programs provided a comparison of health and saving spending limits in various jurisdictions, for repairs unrelated to energy efficiency:¹¹²

¹¹¹ Cluett, Rachel, Jennifer Amann, and Sodavy Ou. "Building Better Energy Efficiency Programs for Low-Income Households." ACEEE. March, 2016. <http://aceee.org/research-report/a1601>.

¹¹² Id.

Table 7: Health and Safety Spending Limits		
Utility or Program Provider	State	Spending Limit
National Grid	Rhode Island	\$500 per home
Pacific Power	Washington	50% of the installed-repair costs required to make energy efficiency upgrades possible (homeowner assumes remaining cost)
Massachusetts Program Administrators	Massachusetts	\$2,500 on an individual home, with an average of \$500/home for the whole program
Comfort Partners	New Jersey	33% of project cost. For spending over \$500 utility permission is required.
Dayton Power and Light	Ohio	15% of project cost
Puget Sound Energy	Washington	30% of implementing agency's total budget
Nebraska Energy Office	Nebraska	15–20% of annual program budget is set aside each year
Federal Weatherization Program	Various	About 15% of program budget; decided at the discretion of states

7. Consider Streamlined Approaches to Income Verification

Income eligibility and verification are a barrier to effective participation in economically-challenged energy efficiency programs. When establishing income eligibility requirements, utilities should consider using existing income eligibility criteria that the economically-challenged customer community is already familiar with, such as those used by federal housing assistance programs. Subsidized multi-family properties can then use existing tenant data to self-qualify. Unsubsidized properties may not track income data in this manner, so consideration should be made to ensure these properties are not excluded from participation.¹¹³

In addition to income verification for program participation, utilities should consider leveraging financing tools that use non-traditional methods to qualify customers (such as bill payment history instead of credit score for on-bill financing programs).

8. Utilize Census Tract Data to Identify Customers for Multi-Family Programs

For economically-challenged multi-family programs, eligible customers should be identified through census tract data. It is difficult to qualify tenants in multi-family units, therefore using census tract data is a preferred method to determine eligibility. Utilities should focus on census tract data within economically disadvantaged geographic areas with the greatest hardship. Utilities should also use existing resources and local community organizations that can help track areas with the greatest need. This will ensure that the most disadvantaged communities are served first and will help avoid the potential for ineligible program participants.

¹¹³ Johnson, 2013: Apartment Hunters: Programs Searching for Energy Savings in Multi-Family Buildings.

8. Target Customers with High Usage First

Utilities should target customers with high usage first. By targeting resources at customers with the highest energy use, programs can maximize savings and ensure that resources are being directed at customers with high potential for energy savings. This strategy also supports customers with the greatest financial energy burden.¹¹⁴

9. Offer Enhanced Rebates to Income-Eligible Customers Through Core Residential Programs

Utilities should offer enhanced rebates to economically-challenged customers as a subset to their “core” residential programs, such as appliance programs and prescriptive incentive programs. This will streamline marketing and communications to customers and reduce confusion among the economically-challenged customer segment. Extending existing programs tends to work well for low income and low-moderate income customers but may not be as effective for extremely low income customers.

The “enhanced rebate” program design has been effective for Focus on Energy as described in Section 3 of this report, Notable Program Profiles. The terminology used for Focus on Energy programs targeting economically-challenged customers needs to be carefully considered. In Wisconsin, both “enhanced rewards” and “Tier 1 and Tier 2” have been used for economically-challenged programs. In Focus on Energy programs, Trade Allies are helpful in communicating the “enhanced” incentives directly to customers.

10. Offer Escalating Incentives

Utilities and stakeholders in Illinois expressed an interest during the IL EE SAG portfolio planning process to encourage “deep retrofits” to maximize energy savings for customers. Utilities should offer escalating incentives to encourage this type of retrofit, since deep retrofits can be costly and time consuming. An ACEEE report recently found that “tying higher incentives to the achievement of higher levels of energy savings will help offset the costs associated with increased work scopes, but may also serve to compensate owners for the perceived risk and uncertainty associated with deep energy retrofits.”¹¹⁵

11. Prioritize Owner-Occupied Customers for Economically-Challenged Programs

Based on housing data from the 2015 American Housing Survey, many economically-challenged customers own their own homes. For example, in the Chicago area 67 percent of economically-challenged customers own single family homes and 15 percent own multi-family properties.¹¹⁶ Given the high percentage of economically-challenged customers that own single family residences, utilities should prioritize those customers first for economically-challenged programs. Subsidized multi-family properties should be targeted second, followed by unsubsidized multi-family properties.

¹¹⁴ See <http://www.appriseinc.org/wp-content/uploads/2016/05/IEPEC-Barriers-and-Solutions.pdf>

¹¹⁵ Johnson, 2013: Apartment Hunters: Programs Searching for Energy Savings in Multi-Family Buildings.

¹¹⁶ American Housing Survey, 2015.

12. Provide Support and Training for Multi-Family Building Benchmarking

Utilities should provide support, training, and/or an incentive for multi-family building managers to utilize benchmarking prior to energy efficiency projects, where appropriate. For example, the ENERGY STAR Portfolio Manager[®] tool allows users to “review and track usage data, compare energy use between buildings, target improvements to reduce energy consumption and costs, and determine the effectiveness of energy improvements.”¹¹⁷

13. For Programs Targeted at Renters, Carefully Tailor Program Design to Ensure Renters Benefit

Renters will benefit from direct install measures in-unit, appliance upgrades for those in the living unit, and weatherization improvements which provide increased comfort. For major measures, program implementers consider strategies for how savings can flow to renters, and include communication strategies to the property managers and residents to educate on the benefits the tenants receive.

14. Quantify and Include Non-Energy Benefits in Economically-Challenged Programs

Non-energy benefits (“NEBs”) to energy efficiency programs are numerous, particularly for economically-challenged customers. Non-energy benefits include, but are not limited to, the following:

- Increased comfort;
- Improved indoor air quality;
- Reduced maintenance;
- Improved health and safety;
- Improved energy affordability / lower utility bills;
- Increased property values;
- Reduced cost of billing assistance programs; and
- Reduced arrearages and bad debts.

Utilities should quantify and include benefits from NEBs for economically-challenged programs. Completing an Illinois-specific study on NEBs should be considered in the next four-year portfolio plan cycle. Quantifying NEBs is important because some economically-challenged customers may respond to signals other than price signals for participation in programs, due to existing subsidies. Ensuring that key program benefits are captured can also address equity concerns in economically-challenged communities.

15. Pilot Use of AMI Data to Help Quantify Savings from Retrofits

Utilities should pilot the use of Advanced Metering Infrastructure (“AMI”) data to help quantify savings from energy efficiency retrofits in economically-challenged programs.¹¹⁸ AMI data could be particularly relevant to economically-challenged populations because baseline can be assumed to be “existing conditions” and net-to-gross (NTG) values can reasonably be set to 1.0. For non-

¹¹⁷ See EPA website: <https://www.energystar.gov/buildings/facility-owners-and-managers/existing-buildings/use-portfolio-manager>.

¹¹⁸ The use of AMI data for energy efficiency programs is anticipated by the Future Energy Jobs Act: **Section 8-103(B)(i)** When practicable, electric utilities shall incorporate advanced metering infrastructure data into the planning, implementation, and evaluation of energy efficiency measures and programs, subject to the data privacy and confidentiality protections of applicable law.

economically-challenged populations, using AMI data to quantify savings could be challenging because baseline may be code, not existing conditions, and NTG values must still be determined and applied.

Two examples of measures that could benefit from the use of AMI data include: 1) Smart thermostats and/or programmable thermostats; and 2) Electric heat measures, such as heat pumps.

16. Develop a Plan for Coordination with Illinois Solar for All Program

The Future Energy Jobs Act includes the creation of the “Illinois Solar for All” program to bring photovoltaics to economically-challenged communities and support a long-term solar marketplace in Illinois. The Illinois Solar for All program is currently in development. Two of the open questions in creating this program include: 1) How to combine the benefits of solar and energy efficiency; and 2) How to coordinate solar and energy efficiency job training programs, where applicable. Utilities and stakeholders should coordinate with the Illinois Solar for All advisory committee on integrating energy efficiency initiatives, including customer outreach and engagement, as well as job training programs.

The Illinois Solar for All program is part of the long-term renewable resources plan that will be submitted to the Commission for approval by the Illinois Power Agency later this year.¹¹⁹

¹¹⁹ See **1-56(b)(2)** The Illinois Power Agency Renewable Energy Resources Fund shall also be used to create the Illinois Solar for All Program, which shall include incentives for low-income distributed generation and community solar projects, and other associated approved expenditures. The objectives of the Illinois Solar for All Program are to bring photovoltaics to low-income communities in this State in a manner that maximizes the development of new photovoltaic generating facilities, to create a long-term, low-income solar marketplace throughout this State, to integrate, through interaction with stakeholders, with existing energy efficiency initiatives, and to minimize administrative costs. The Agency shall include a description of its proposed approach to the design, administration, implementation and evaluation of the Illinois Solar for All Program, as part of the long-term renewable resources procurement plan authorized by subsection (c) of Section 1-75 of this Act, and the program shall be designed to grow the low-income solar market. The Agency or utility, as applicable, shall purchase renewable energy credits from the (i) photovoltaic distributed renewable energy generation projects and (ii) community solar projects that are procured under procurement processes authorized by the long-term renewable resources procurement plans approved by the Commission.

Section 6: Outstanding Questions

Additional research is needed on economically-challenged energy efficiency programs to support the IL EE SAG and Economic Disadvantaged Energy Efficiency Stakeholder Advisory Committee, as summarized below.

1. **Economically-Challenged Home Survey / Building Stock Analysis:** A survey of economically-challenged homes in Illinois should be completed using EM&V funds to determine if equipment baselines need to be updated – what types of equipment and insulation do the homes have? Does this differ between north/south? If so, how? This information can also be used to refine economically-challenged program designs, if needed. A measure saturation study, targeting economically-challenged homes, should be completed prior to the next four-year portfolio plans to ensure that economically-challenged programs are effectively reaching customers.
2. **Profile of Notable Programs:** Numerous economically-challenged energy efficiency programs were reviewed across the country for this report, to identify successful programs and key recommendations for Illinois utilities and stakeholders to consider. Further research is needed on notable programs to identify budget spend, savings achieved, total participation, partnerships, outreach strategies, cost-effectiveness, incentive levels, incentive versus non-incentive costs, evaluation results, etc. This research will fully inform Illinois utilities and stakeholders on successful program designs. Additionally, program administrators for successful programs should be contacted to discuss best practices and recommendations that Illinois utilities can learn from.
3. **Financing:** Additional research should be completed on successful financing initiatives for economically-challenged customers. Financing programs were reviewed across the country for this report, however additional research and analysis is needed to determine best practices. Utilities and stakeholders should explore how to address financing challenges and how financing can be incorporated as a complement to economically-challenged energy efficiency programs in Illinois.
4. **Health and Safety:** Additional research should be conducted on successful economically-challenged energy efficiency programs that incorporate the resolution of health and safety issues. The following key questions should be addressed: What is the process to resolve health and safety issues? How much is needed and what is covered? Can homes be “pre-screened” without a site visit?
5. **Evaluation:** Research Evaluation, Measurement and Verification (“EM&V”) needs for economically-challenged programs, including reviewing EM&V reports for successful programs in other jurisdictions and identifying how AMI data can be used to help quantify savings. Utilities should develop economically-challenged program-specific evaluation plans that address the unique needs and requirements of the economically-challenged programs, input from key stakeholders and the need to maximize incentives over administrative or non-incentive budgets.
6. **Leveraging Other Funding:** Some states allocate state funding to supplement utility energy efficiency programs. Leveraging funding can assist in extending finite ratepayer funds for programs that serve economically-challenged customers. Additional research is needed to

determine whether there is an opportunity for utilities to leverage Illinois funds for economically-challenged energy efficiency programs. Additionally, research is needed on the impact of potential federal budget cuts on state of Illinois funding that may affect energy efficiency programs.

7. **Quantifying Non-Energy Benefits:** Completing an Illinois-specific study on NEBs should be considered in the next four-year portfolio plan cycle so that utilities can quantify and include the benefits from NEBs for economically-challenged programs. Additional research is needed on how other jurisdictions quantify NEBs for economically-challenged customers; what NEBs are typically included; etc.
8. **Energy Efficiency as a Tool for Community Development:** There are positive economic benefits from energy efficiency programs that should be realized within the communities being served by economically-challenged programs. Additional research is needed on successful approaches to community development and job creation, specifically those with economically-challenged residents. Best practice outreach research should be completed to support this effort, with a plan developed in coordination with community organizations that maximizes the energy efficiency investment benefits for the economically-challenged customer.

Section 7: Conclusion

This Economically-Challenged Report is based on a review of successful programs, reports on overcoming barriers and effectively reaching economically-challenged customers, past practices in Illinois, and key characteristics of extremely low income, low income and low-moderate income customers. The purpose of this report is to support the energy efficiency programs in maximizing benefits for economically-challenged customers and the economically disadvantaged communities they live in. Energy efficiency investment is proven to create and promote job growth, and economically disadvantaged communities are the areas most in need of this investment. Utilities, stakeholders and the IL EE SAG should work closely with local community organizations, through the Economically Disadvantaged Energy Efficiency Stakeholder Advisory Committee, to ensure that the economically-challenged customer segment is effectively reached over the next four-year portfolio plans.

Best practices should be utilized from existing programs that have been successful across the country, leveraging what already exists when offering new programs to economically-challenged customers. Program designs should be tailored specifically to the needs of the economically-challenged customer, and be adaptable to change to remain successful. Pilot programs, which help test new concepts, measures and customer approaches, should be utilized to identify gaps and new opportunities, and adapt existing program designs.

SAG Facilitation suggests the completion of additional research to fully inform utilities, stakeholders and the IL EE SAG on economically-challenged energy efficiency programs. Outstanding questions are described in Section 6 of this report.

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Appendix A: Additional Research

This appendix summarizes additional research completed for the Low Income Report. Research is organized into two categories: Findings and Program Profiles. Information provided in this appendix may be useful as a starting point for the research needs identified in Section 6, Outstanding Questions. Note that information provided in this appendix has been pulled directly from source(s).

Findings

A. Historical Illinois Low Income Energy Efficiency Programs

Utility-Funded Programs

Public Housing Authority: Efficient Living

- **Eligibility:** While the program is primarily targeted at Public Housing Authorities, the program has been extended to additional federally-subsidized low income programs:
 - Public Housing Authorities
 - Housing and Urban Development Section 8 Multifamily Project Based Rental Units
 - Housing and Urban Development Section 811 Supportive Housing Units
 - Housing and Urban Development Section 202 Supportive Housing for Elderly Persons
 - U.S. Department of Agriculture 515 Rental Housing Projects
- **Description:**
 - Free on-site assessment and technical services, which may include recommendations, upgrades, energy-saving practices, resident education and building staff training. Participants are provided with support for completing applications and obtaining incentives.
- **Incentive:**
 - Grants available for a wide range of gas and electric improvements
 - 50% of the grant is provided up-front, with the remaining 50% upon project completion
 - Maximum grant amount is \$450,000
- **Annual Budget and Savings (filed annual budget and savings for plan years 2014-2017¹²⁰):**
 - \$4,000,000 total budget (gas and electric)
 - 4,730,000 kWh
 - 100,000 therms

Energy Efficient Affordable Housing Construction Program

- **Eligibility:**
 - Non-profit and for-profit affordable housing developers building or rehabbing single-family and multi-family buildings.
 - Projects must be targeted to households at or below 80% AMI
- **Description:**
 - Grants available for new construction and gut rehab projects to offset the additional material and labor costs required to include energy efficiency measures in low income residential construction.
 - Energy efficient measures may include insulation, upgraded windows, lighting, ENERGY STAR® appliances, air leakage testing, materials and labor to include air sealing work, ventilation systems and upgrades to the heating, air conditioning and domestic hot water systems.

¹²⁰ Department of Commerce and Economic Opportunity, Illinois Energy Now – Integrated Energy Efficiency Portfolio Filed Plan – 2014-2017, <https://www.icc.illinois.gov/downloads/public/edocket/356559.pdf>.

- **Incentives:**
 - Gut Rehab Projects:
 - Up to \$4,650 per living unit for single-family homes.
 - Up to \$4.60 per square foot of gross square footage of living space or \$4,650, whichever is less, for multi-family buildings that will result in less than 80 units.
 - Up to \$4.35 per square foot of gross square footage of living space or \$4,650, whichever is less, for multi-family buildings that will result in 80 units or more.
 - New Construction Projects:
 - Up to \$4,150 per living unit for new single-family homes.
 - Up to \$6,700 per building for new duplex constructions.
 - Up to \$7,800 per building for new “3-flat” construction.
 - Up to \$8,900 per building for new “4-flat” construction.
 - Up to \$11,500 per building for new “5-flat” construction.
 - Up to \$4.35 per square foot of gross square footage of living space in new multi-family buildings with less than 80 units.
 - Up to \$4.10 per square foot of gross square footage of living space in new multi-family buildings with 80 units or more.
- **Annual Budget and Savings (filed annual budget and savings for plan years 2014-2017¹²¹):**
 - \$4,000,000 total budget (gas and electric)
 - 4,730,000 kWh
 - 100,000 therms

Residential Retrofit Energy Efficiency Program

- **Energy Efficiency in Affordable Housing** (implemented by Elevate Energy)
 - **Eligibility:**
 - Affordable rental housing properties of 2 or more units with tenants up to 80% of AMI (may be subsidized or unsubsidized)
 - **Description:**
 - Program provides a home assessment and full project support from an energy advisor. The energy advisor provides assistance selecting cost-effective improvements and qualified contractors, and applying for and obtaining financing, rebates, grants and incentives. The program conducts construction oversight and post-installation inspections, offering participants annual reports of utility bill savings.
 - **Incentive:**
 - The program offers services throughout the process rather than specific incentives, instead leveraging other energy efficiency rebates, incentives and financing.
 - **Annual Budget and Savings (filed annual budget and savings for plan years 2014-2017, average of three-year plan¹²²):**
 - \$7,400,000 total budget (gas and electric)
 - 6,030,000 kWh
 - 180,000 therms
- **Energy Savers Grant** (Implemented by Chicago Bungalow Association)
 - **Eligibility:**
 - The program is limited to owner-occupied vintage single-family home built at least 50 years ago that are located in the City of Chicago.
 - Household income up to 80% AMI.
 - **Description:**

¹²¹ Department of Commerce and Economic Opportunity, Illinois Energy Now – Integrated Energy Efficiency Portfolio Filed Plan – 2014-2017, <https://www.icc.illinois.gov/downloads/public/edocket/356559.pdf>.

¹²² Department of Commerce and Economic Opportunity, Illinois Energy Now – Integrated Energy Efficiency Portfolio Filed Plan – 2014-2017, <https://www.icc.illinois.gov/downloads/public/edocket/356559.pdf>.

- The program offers a home assessment, prior to awarding the grant. Approved weatherization projects may include sealing the attic, basement and sidewalls, installing attic insulation, and completing weather stripping around windows and doors.
 - **Incentive:**
 - Up to \$3,600
 - **Annual Budget and Savings (filed annual budget and savings for plan years 2014-2017¹²³):**
 - \$2,000,000 total budget (gas and electric)
 - 610,000 kWh
 - 310,000 therms

B. Building Stock: Multi-Family versus Single Family Customers, Owners versus Renters

The Midwest is limited to Illinois, Indiana, Michigan, Ohio and Wisconsin in these tables.¹²⁴

Table 4.1: Chicago Metro Average – Single-Family versus Multi-Family by Income Level

	Single-Family		Multi-Family		Total
	Units	%	Units	%	Units
Less than 50% of Poverty Level	125,700	45%	153,000	55%	278,700
50-99% Poverty Level	96,300	40%	143,200	60%	239,500
100-149% Poverty Level	148,400	54%	128,900	46%	277,300
Total Low Income (<150%)	370,400	47%	425,100	53%	795,500
150-199% Poverty Level	157,200	56%	123,300	44%	280,500
200%+ Poverty Level	1,698,900	71%	694,200	29%	2,393,100
Total Non-Low Income (≥150%)	1,856,100	69%	817,500	31%	2,673,600
Total Low and Non-Low Income	2,226,600	64%	1,242,600	36%	

Table 4.2: Midwest Average – Single-Family versus Multi-Family by Income Level

	Single family		Multi-family		Total
	Units	%	Units	%	Units
Less than 50% of Poverty Level	677,000	59%	464,000	41%	1,141,000
50-99% Poverty Level	903,000	57%	675,000	43%	1,578,000
100-149% Poverty Level	1,062,000	66%	555,000	34%	1,617,000
Total Low Income (<150%)	2,642,000	61%	1,694,000	39%	4,336,000
150-199% Poverty Level	1,205,000	72%	465,000	28%	1,670,000
200%+ Poverty Level	10,157,000	85%	1,847,000	15%	12,004,000
Total Non-Low Income (≥150%)	11,362,000	83%	2,312,000	17%	13,674,000
Total Low and Non-Low Income	14,004,000	78%	4,006,000	22%	

Table 4.3: National Average – Single-Family versus Multi-Family by Income Level

	Single family		Multi-family		Total
	Units	%	Units	%	Units
Less than 50% of Poverty Level	5,048,000	61%	3,232,000	39%	8,280,000
50-99% Poverty Level	5,994,000	61%	3,837,000	39%	9,831,000
100-149% Poverty Level	7,407,000	68%	3,451,000	32%	10,858,000
Total Low Income (<150%)	18,449	64%	10,520	36%	28,969

¹²³ Department of Commerce and Economic Opportunity, Illinois Energy Now – Integrated Energy Efficiency Portfolio Filed Plan – 2014-2017, <https://www.icc.illinois.gov/downloads/public/edocket/356559.pdf>.

¹²⁴ See American Housing Survey, 2015.

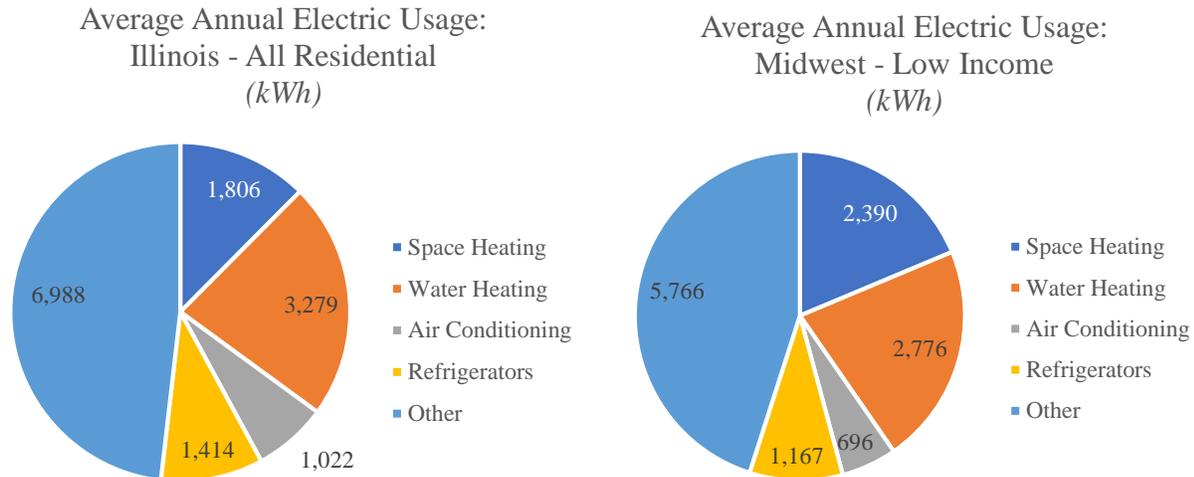
150-199% Poverty Level	7,669,000	72%	2,947,000	28%	10,616,000
200%+ Poverty Level	64,079,000	81%	14,560,000	19%	78,639,000
Total Non-Low Income ($\geq 150\%$)	71,748	80%	17,507	20%	89,255
Total Low and Non-Low Income	90,197,000	76%	28,027,000	24%	

Table 5: Average Owner versus Renter Population, Low Income versus Non-Low Income¹²⁵

	Chicago Metro			Midwest Average			National Average		
	Low Income	Non-Low Income	Total	Low Income	Non-Low Income	Total	Low Income	Non-Low Income	Total
Single-Family Owner	67%	88%	85%	63%	87%	83%	61%	83%	79%
Single-Family Renter	33%	12%	15%	37%	13%	17%	39%	17%	21%
Multi-Family Owner	15%	29%	24%	6%	18%	13%	5%	15%	12%
Multi-Family Renter	85%	71%	76%	94%	82%	87%	95%	85%	88%
Total Owner	39%	70%	63%	41%	76%	67%	40%	70%	63%
Total Renter	61%	30%	37%	59%	24%	33%	60%	30%	37%

C. Low Income Energy Use in Illinois

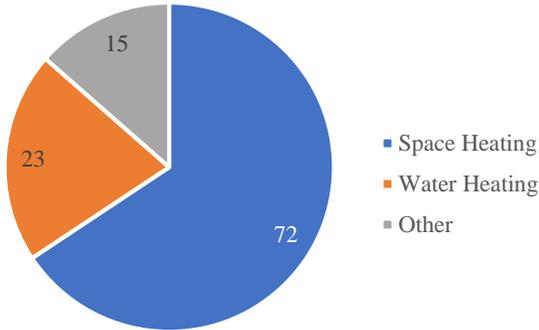
Chart 4.1, 4.2, 4.3 and 4.4: Residential Energy Consumption Survey (RECS) – 2009, Midwest Region¹²⁶



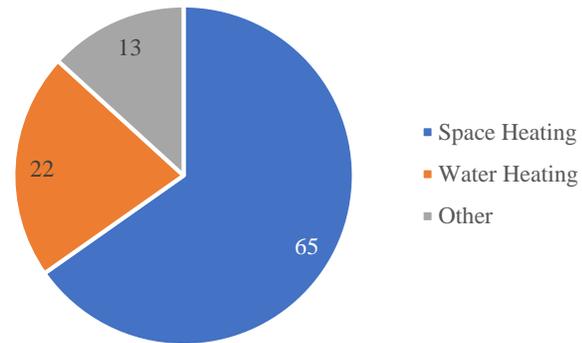
¹²⁵ See American Housing Survey, 2015.

¹²⁶ See 2009 Residential Energy Consumption Survey

Average Annual Gas Usage:
Illinois - All Residential
(thousand cubic feet)



Average Annual Gas Usage:
Midwest - Low Income
(thousand cubic feet)



D. Financing Programs

Single-Family Financing

There are limited options for low income customers in single-family homes, as low income customers often have lower credit scores or higher debt ratios which reduce options for affordable financing.

- **Utility on-bill financing**
- **USDA Single Family Housing Repair Loans and Grants**
 - Also known as Section 504 Home Repair program
 - Provides loans to very-low-income homeowners to repair, improve or modernize their homes or grants to elderly very-low-income homeowners to remove health and safety hazards.
 - Loans may be used to repair, improve or modernize homes or remove health and safety hazards
 - Grants must be used to remove health and safety hazards
 - Maximum loan is \$20,000
 - Maximum grant is \$7,500
 - Loans and grants can be combined for up to \$27,500 in assistance
 - To qualify –
 - Be the homeowner and occupy the house
 - Be unable to obtain affordable credit elsewhere
 - Have a family income below 50 percent of the area median income
 - For grants, be age 62 or older and not be able to repay a repair loan
 - <https://www.rd.usda.gov/programs-services/single-family-housing-repair-loans-grants/il>
- **Neighborhood Lending Services, Inc. (NLS)**
 - <https://www.nhschicago.org/fix/home-repair-loans/>

Multi-Family Financing

- **Leverage Existing Financing Plans**
 - Align utility and housing finance programs (LIHTC). Incorporating utility customer funding at the time of such affordable housing refinance and redevelopment can yield deeper, more comprehensive energy efficiency improvements. These extensive renovations involve replacing outdated building systems, and utility customer funds can be used to help cover the incremental cost of installing more efficient equipment than would otherwise be required. Reaching owners when they are redeveloping their properties can provide relatively inexpensive but deep and long lasting energy savings. The challenge is aligning the timing of energy efficiency programs with redevelopment project cycles that can span several years. [Apartment Hunters: Programs Searching for Energy Savings in Multifamily Buildings](#)

- **Partner Organizations – State housing finance agencies, Community Development Financial Institutions (CDFIs)**
 - Community development financial institutions (CDFIs) often operate loan programs to support affordable housing. Loans can be primary-lien purchase or refinance loans, and CDFIs can also make unsecured or subordinate-lien loans suited to making efficiency improvements and repairs in affordable housing. CDFIs are certified by the US Treasury’s CDFI Fund, which provides monetary support to CDFIs through a variety of programs. [Program Design Guide: Energy Efficiency Programs in Multifamily Affordable Housing](#)
 - Housing finance agencies (HFAs) -Housing finance agencies (HFAs) are state-designated entities that help finance the construction and rehabilitation of affordable rental housing.⁷ Because HFAs have processes in place to verify the incomes of building residents, they play a role in targeting energy efficiency programs to specific populations. HFAs can also allocate funding with a preference given to projects that reduce residents’ energy usage. [Best Practices in Developing EE Programs for Low-Income Communities - ACEEE](#)
 - PHAs sometimes engage energy service companies (ESCOs) to finance and implement energy efficiency improvements to their properties. In 2006, PHAs nationwide invested approximately \$350 million in energy savings performance contracts (ESPCs) and saved about \$37 million (HUD 2016). Before PHAs enter into an ESPC, they must receive permission from their US Department of Housing and Urban Development (HUD) field office and coordinate with that office throughout project implementation. <http://portal.hud.gov/hudportal/documents/huddoc?id=pih2011-36.pdf>
- **Challenges**
 - Financing barriers. Affordable housing owners typically have complicated financing arrangements that inhibit them from taking on any new debt except at the time of purchase or refinancing. [Program Design Guide: Energy Efficiency Programs in Multifamily Affordable Housing](#)

General Financing Analysis

- **ACEEE, Energy Efficiency Finance: A Market Reassessment**
 - <http://aceee.org/sites/default/files/market-reassessment-0216.pdf>
 - The difficulties of serving the low-income households segment range from credit concerns among lenders to stimulating consumer interest in energy efficiency given the many concerns facing these individuals. While limited demand is a real issue, the fact remains that even those interested in investing in energy efficiency face hurdles in obtaining credit for the enhancements.
 - In Illinois, for instance, demand is quite robust for home performance measures supported by on-bill financing offered from Ameren. According to the Illinois Department of Commerce and Economic Opportunity, half of the low-income households applying for Ameren’s on-bill financing are denied due to credit concerns (M. Lunn, assistant deputy director for energy and recycling, Illinois Department of Commerce and Economic Opportunity, pers. comm., October 23, 2015). While seemingly high, the denial rate in this program is similar to levels reported for other on-bill programs, such as the one offered by the New York State Energy Research and Development Authority (NYSERDA) (Zimring et al. 2011).
 - Summary of challenges:
 - One likely explanation for why this market remains underserved is that overcoming credit issues is among the most challenging and intractable problems facing a financing program.
 - In some cases it may not be helpful for the customer to take on additional debt—the amount of leverage is simply already overwhelming.
 - In other cases any access to financing may be better used to solve other critical issues, whether related to transportation needs or the health and safety of the inhabitants.
 - Providing the financing to these individuals may also greatly strain the program design.
 - Programs that target them tend to push cash flow– positive investments, which can be a very high bar to overcome, especially in the residential market.

- how best to ensure that subsidies reach the intended targets, such as by requiring proof of income among participants. The difficulty is that verifying income levels can put undue burdens on contractors and lead to embarrassment among customers. One way to overcome this issue would be to follow the philosophy of the CDFI Fund, which targets low-income communities rather than low-income households. The logic is that most individuals living in these areas likely meet the requirements or will benefit from the investments. By looking to the census tract, which can be determined without tax documents from the borrower, contractors or program implementers could avoid extra paperwork burden and uncomfortable income questions. Dealing with these concerns is a key part of making the process easier and enhancing the experience for customers and trade allies alike.
 - Given the challenges posed by serving low- and moderate-income households, we suggest cementing stronger connections to lenders that are already assisting these communities. The work done to bring together the energy efficiency industry and mission-driven lenders, such as community development financial institutions (CDFIs), represents a good start. In our previous paper we detail a number of examples, such as the pioneering efforts of the Reinvestment Fund and Craft3 (Freehling 2011).
 - One emerging trend is to make better use of mechanisms previously developed by the community development industry to increase access to credit for low-income communities. For instance, the Solar and Energy Loan Fund (SELF) in Florida has begun to deploy several tried-and-true strategies developed over the past 30 years by community development lenders and practitioners. These efforts include connecting lenders and their borrowers to socially responsible individual investors through the Calvert Foundation, using peer-to-peer lending networks such as Kiva, and accessing lower-cost and more-flexible capital from religious institutions (D. Coward, executive director, Solar and Energy Loan Fund, pers. comm., October 29, 2015). Doing so can reduce the cost of capital or lower risks, which helps lower the interest rates ultimately paid by the borrowers.
 - All of these strategies have historically helped steer billions into low-income communities and could provide significant support to energy efficiency finance going forward. The opportunities for further strengthening these ties appear great and should be expanded, given the important lessons learned by these institutions and the tools they have developed over many years of trial and error.
 - In addition to accessing these important tools, the energy efficiency industry must tackle several key challenges. One is determining which institutions are best suited to manage the funds provided by governments, utility programs, and foundations that can provide capital for loan loss reserves or buy down interest rates. On one side are existing lenders in the energy efficiency space, who may have little experience serving low-income households. On the other are lenders committed to serving low-income communities, such as CDFIs, which may lack efficiency expertise. Each has important strengths and critical weaknesses. The best option is probably for these groups to work together more formally.
- **New York Study:**
 - <http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId=%7BB56F124C-0EB9-417B-9886-74F640EC36A9%7D>
 - Access to capital and financing is a primary barrier to clean energy upgrades for both LMI households and building owners, resulting in lost opportunities for achieving energy savings or other home improvements. While subsidized programs can alleviate this barrier for some, these programs are only able to serve a portion of the market due to budget limitations relative to the size of the market. Copay requirements also present barriers to participation where customers do not have the capital to make the upfront copayment. 139
 - While low-interest financing is available in New York through Green Jobs- Green New York, qualification criteria¹⁴⁰ can disqualify prospective borrowers and the sole reliance on the subsidized loan fund creates sustainability issues that can impact the ability to preserve lending at such low interest rates. To scale the market for clean energy improvements, new finance models are necessary that can leverage or extend the life of program funds, incorporate third

party capital, or can be operated in an inclusive manner, and not disproportionately benefit borrowers or lenders are necessary. For example, clean energy investments can generate significant and steady revenue streams, which could serve as a stable source of underwriting for loans that finance the investments.

- Recommendations:
 - Demonstrate an inclusive finance solution in New York that overcomes the credit barriers faced by lower income and low FICO consumers, integrates 3rd party capital to create a finance model that is more sustainable than the current GJGNY revolving loan fund, and possibly includes a guaranteed cost recovery mechanism.
 - While program incentives can help offset the costs of clean energy improvements by LMI customers and affordable building owners, in some cases the incentives are either not sufficient to overcome first cost barriers or they are paid out in milestones. NYSERDA should develop a bridge loan product that will provide the necessary capital to initiate clean energy improvements. Such loans could be structured as a short-term bridge product that could fund a portion of construction or installation, leveraging near term incentives as source of repayment and then rolled into a flexible permanent financing source, such as described in the prior recommendation.
 - To encourage energy efficiency improvements by LMI tenants and to address the split incentive issue, the utilities and/or NYSERDA should develop a program approach that would allow interested tenants to finance high efficiency appliances through 0% interest loans. The financing would need to result in net positive cash flow for the tenant. 141

E. Low income Advisory Groups

- **Green Jobs – Green New York Low-to-Moderate Income Working Group:**
<https://www.nyserdera.ny.gov/Researchers-and-Policymakers/Green-Jobs-Green-New-York/GJGNY-LMI-Working-Group>
 - **Where:** New York State, convened by NYSERDA.
 - **What:** Astate mandated working group, which continues to participate in the Advisory Council:
 - Convene a working group to assist in developing these standards and/or criteria that include individual representatives of Constituency-Based Organizations (CBOs).
 - Consult with and solicit information and recommendations from the Working Group as to how to increase participation and issuance of loans to low- to moderate-income households seeking qualified energy efficiency services.
 - Report the results of consultations with and solicitations of the Working Group to the governor, the senate majority leader and the speaker of the assembly within six months of the effective date of the legislation.
 - **Features**
 - “To actively evaluate alternative approaches for the delivery of services to LMI customers that can improve value, for the customers served as well as for the rate-payer funding invested.”
 - Four subgroups are: single-family housing sector, multi-family housing sector, renewables, and community-based approaches/customer acquisition.
 - Conducted focus groups with low-income consumers and issued a survey to individuals belonging to a number of organizations that address low-income customer needs. Stakeholders provided their perspectives on accessing or working with current energy programs, while low-income consumers provided their perspectives on energy issues including affordability, awareness, and program participation.
 - Conducted significant research and analysis on New York and national best practices and opportunities, generating a detailed report on alternative approaches to serving low income customers.
 - **Value**
 - While still in its early stages, the working group has established an effective forum to discuss the challenges and opportunities for engaging with and designing programs for

low income customers. Several, actionable recommendations have come out of the working group and are actively being pursued, as detailed on the working group's webpage within the NYSERDA website. The comprehensive analysis and report, "Report on Alternative Approaches to Providing Low and Moderate Income (LMI) Clean Energy Services" has been compiled with input from the entire working group, including details on where positions differed or full consensus was not obtained, and identifies specific opportunities for program improvements to be pursued.

- **Massachusetts – Low-Income Energy Affordability Network:** <http://leanmultifamily.org/lean>
 - **Where** – Massachusetts
 - **What** – Advisory committee that oversees a statewide multi-family low income program that is funded by several utilities.
 - LEAN, the Low-Income Energy Affordability Network, an association of community action agencies that have been provided energy efficiency and weatherization services since 1997, created the Multi-Family Advisory Committee to bring together utilities, housing finance organizations, community development, tenant and ownership communities.
 - The Committee assists with outreach to local communities, and helps to provide feedback and recommendations for implementation challenges.
 - **Features**
 - Recognized by ACEEE
- **NYSERDA:** <https://www.nyserderda.ny.gov/Researchers-and-Policymakers/Green-Jobs-Green-New-York/GJGNY-LMI-Working-Group>
 - Working group established June 7, 2016 – developed report and plans for implementing improvements, continues to participate in Advisory Council (not separate/dedicated advisory committee for low income)
 - The stated purpose of the LMI Working Group is “to actively evaluate alternative approaches for the delivery of services to LMI customers that can improve value, for the customers served as well as for the rate-payer funding invested.”
 - Four subgroups are: single-family housing sector, multi-family housing sector, renewables, and community-based approaches/customer acquisition
 - Working Group conducted focus groups with low-income consumers and issued a survey to individuals belonging to a number of organizations that address low-income customer needs. Stakeholders provided their perspectives on accessing or working with current energy programs, while low-income consumers provided their perspectives on energy issues including affordability, awareness, and program participation.
 - Findings from the focus groups:
 - Most low-income consumers place the highest value on the services that result in the lowest energy costs for the home, indicating that they did not have a preference for energy efficiency or renewable energy services;
 - Most consumers are interested in more information on energy and how to reduce energy costs online, over the phone, or in the home;
 - Many consumers identified the need to prioritize the paying for other necessities, such as rent or medicine, over their energy bills;
 - Rigid income eligibility requirements present a challenge for households that make just over the income threshold;
 - Many consumers took actions to reduce energy consumption in the home, including turning off appliances and shutting off lights when not in use, hanging laundry instead of using a clothes dryer;
 - Understanding utility bills was a challenge for many of the consumers;
 - Consumers identified challenges accessing information on available programs from their utility, and poor communications from service providers about what measures are eligible;

- Many consumers identified the importance of having a trusted source of information on energy programs and opportunities to reduce energy costs, such as a neighbor or community-based organization; and
- Consumers that participated in the EmPower NY program, identified the program as effective in reducing their energy consumption.

F. Opportunities to Leverage Additional Resources

- **Illinois Housing Weatherization Assistance Program (“IHWAP”)**

- Single Family

- **Multi-Family:**

https://portal.hud.gov/hudportal/documents/huddoc?id=fsweather_proc_mf_building.pdf

- WAP eligibility - Multifamily buildings are eligible if 66% of the dwelling units in the building (50 percent if fewer than 5 units) meet WAP’s income eligibility requirement of 200 percent below poverty. If a multifamily building meets the eligibility requirement, the entire building may be weatherized. This means that insulating the entire building shell and other envelope improvements, upgrading central heating systems and common areas are eligible measures, provided they meet the DOE cost-benefit requirements. NOTE: Building owners must determine and communicate how they will pass the benefits of weatherization services on to residents. Building owners may need to provide documentation and verification that tenants are protected against rent increases that are directly related to the weatherization work. (Applies to HUD supported properties with less than 3 years remaining on affordability agreement, as well as LIHTC and USDA properties)

- **Utility programs / outreach**

- Bill Assistance Programs - Building Better EE Programs for Low Income Households, http://ilsagfiles.org/SAG_files/Meeting_Materials/2017/January_31_2017/Building_Better_EE_Low_Income_ACEEE_March_2016.pdf

- New Jersey and Wisconsin the highest-use households in the affordability program are required to have energy efficiency upgrades (APPRISE 2007). In California the highest users in the California Alternate Rates for Energy (CARE) bill payment assistance program are identified through analysis, notified of their high usage, and provided with resources on program opportunities to improve energy efficiency (Edel and Abeyta 2015; PG&E 2014). Customers must lower their usage and participate in the local energy efficiency program to remain enrolled in CARE. Exceptions to this requirement are available for medical needs and other extenuating circumstances (Edel and Abeyta 2015; PG&E 2014). Non-high-use customers in the CARE program are not required to participate in the energy efficiency program, but are encouraged to do so. PG&E conducts direct outreach to encourage non-high-use customers enrolled in CARE to sign up for its energy efficiency program, ESA (PG&E 2014). Contractors in this program can access energy use data from the CARE program to use in their efforts to enroll customers (PG&E 2014).

- Arrearage Management Programs - Building Better EE Programs for Low Income Households, http://ilsagfiles.org/SAG_files/Meeting_Materials/2017/January_31_2017/Building_Better_EE_Low_Income_ACEEE_March_2016.pdf

- Energy efficiency programs can also be coordinated with arrearage management programs, which provide financial assistance to households who have bills in arrears. Arrearage management programs generally forgive some or all of a customer’s unpaid debt if the customer makes regular on-time payments for new utility charges (Harak 2013). Some arrearage management programs require households to make energy efficiency upgrades to continue to be enrolled in the program. These programs can also help create a favorable relationship between the customer and the utility that can help encourage participation in energy efficiency programs (Harak 2013).

- **Additional organizations to review:**
 - CAP Agencies
 - Community Development Housing Organizations
 - Financial Institutions

G. Income Qualification

- **Consistency in Income Eligibility Classification (NY Study)**

<http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId=%7BB56F124C-0EB9-417B-9886-74F640EC36A9%7D>

- LMI customers and affordable building owners often receive or seek services from multiple energy, housing, financing, and other social service programs. While many of these programs have aligned eligibility criteria,¹⁴⁵ there are some differences, as well as variations in terminology that can lead to confusion for the customers and service providers. In order to effectively engage both LMI households and affordable building owners to facilitate/encourage clean energy upgrades and achieve synergies with other publically funded LMI energy, housing, and social service programs it is essential to establish a consistent approach for defining the LMI market segment, as well as establishing categorical eligibility between programs to reduce administrative overhead and application time.
- Recommendations:
 1. NYSERDA and DPS should work with other state and federal agencies to align household and building eligibility requirements and standardize terminology across energy, housing, and social service programs to the extent possible.
 2. NYSERDA and the utilities should establish a tiered approach to establishing LMI service eligibility that fosters consistency with other energy, housing and social service programs.
 - a. For households: develop a two-tiered approach that would provide different levels of subsidy for clean energy services to both homeowners and renters.
 - i. Tier 1- would apply to households up to 60% SMI (HEAP and WAP eligibility);
 - ii. Tier 2- would apply to households between 60% of SMI and 80% of AMI (or state, whichever is greater), which would be consistent with HUD designation;
 - b. For buildings: in a similar manner, develop a consistent approach for establishing three tiers of eligibility for programs based on the percentage of income eligible units and status as regulated affordable housing.¹⁴⁶
 - i. Tier 1- weatherization eligible buildings that meet the federal DOE Weatherization requirement for whole building eligibility, requiring that 66% of all households in the building (or project) meet the DOE household income eligibility requirement (which, in NY, is 60% of State Median Income (SMI));
 - ii. Tier 2 – government regulated multifamily buildings, with rent level requirements for a specified share of the apartment units in the building or complex of buildings that are specified in some form of contract or regulatory

agreement between HUD, NYSHCR, or NYCHPD and the property owner;

- iii. Tier 3 – privately owned properties that are not publicly assisted or government regulated through such a contract or agreement but whose rent levels for at least 25% or the apartment units in the building (as confirmed by their rent rolls for the building) meet the HUD definition of affordability, i.e., that the monthly rent for a given size apartment is not more than 30% of the monthly income for households with incomes not greater than 80% of Area Median Income (AMI).

H. Non-Energy Benefits

Building Better EE Programs for Low Income Households,

http://ilsagfiles.org/SAG_files/Meeting_Materials/2017/January_31_2017/Building_Better_EE_Low_Income_ACEEE_March_2016.pdf

- Increased comfort, improved indoor air quality, and reduced maintenance. improving health and safety, improving energy.
- Affordability, reducing the cost of rate affordability programs, reducing arrearages, and addressing equity concerns by ensuring that the low-income sector is adequately served by a utility's energy efficiency program portfolio.

Apartment Hunters: Programs Searching for Energy Savings in Multifamily Buildings,

http://ilsagfiles.org/SAG_files/Low_Income/Apartment_Hunters_Programs_Searching_Energy_Savings_MF_Buildings.pdf

- Multi-Family: In practice, however, these benefit-cost tests often fail to account for non-energy benefits such as improved property values, tenant health, safety, and comfort, and reductions in operations and maintenance costs (Neme & Kushler 2010).
- The multifamily programs are especially cost effective from a societal perspective as shown by the high societal cost test (SCT) ratios. This test takes into account environmental and other benefits beyond energy savings, such as improved health and safety of buildings, property values, and tenant comfort.

Program Design Guide: Energy Efficiency Programs in Multifamily Affordable Housing,

http://ilsagfiles.org/SAG_files/Low_Income/EE_Programs_MF_Affordable_Housing_EEFA.pdf

- The cost of obtaining these system benefits delivers value directly back to customers —increasing the value of the building stock, reducing expenses, improving the health and safety of tenants, and more.
- Account for non-energy benefits. Non-energy benefits (or non-energy impacts) include many very real values directly resulting from efficiency projects, such as health benefits (for instance, from reduced mold as a result of better humidity control) and reduced maintenance costs. Because these values are often hard to measure with precision (or costly to do so), they have often been excluded. They should be included; the uncertainty associated with approximate values is better than systematic undervaluation.
- The non-energy benefits that accompany energy efficiency repairs and improvements can be substantial for residents of affordable housing, including better health, lower expenses, reduced mold, and greater comfort. Finally, utilities should value the potential to reduce arrearages and bad debts. Utility customers living in MFAH account for a disproportionate amount of late, unpaid, or uncollectible bills. The cost of bad debts accrues to all utility customers. Bringing greater energy efficiency to MFAH could improve customers' ability to meet their obligations.
- Improving air sealing can lead to very real health benefits from better indoor air quality, better humidity control can reduce mold, and better HVAC control can lower maintenance costs.
- NEBs: Several programs have found effective ways to account for these hard-to-measure values. Some states include multipliers (ranging from 7.5 percent to 25 percent) to the benefits side of cost-

effectiveness tests to loosely estimate non-energy benefits. Other states incorporate a simple “adder.” This approach is most often used to incorporate reductions of pollutant emissions or other environmental effects. Some states have estimated NEBs using quantitative methods, but this practice is still evolving. Some states will use values for “easier to measure” NEBs (e.g., water bill savings from clothes washer programs), and an adder for other NEBs as data and stakeholder consensus permit.

Partnering for Success: An Action Guide for Advancing Utility Energy Efficiency Funding for Multifamily Rental Housing,

http://ilsagfiles.org/SAG_files/Low_Income/Partnering_for_Success_Action_Guide_Advancing_UTILITY_EE_Funding_MF_Rental.pdf

- Low-Income Renters benefit through lower utility bills. Efficiency improvements also lower operating costs and allow owners to maintain affordable housing. Renters also benefit from a healthier living environment which may lower the incidence of illnesses such as asthma. All Utility Customers benefit because energy efficiency programs decrease their bills in the long run by reducing the need for utilities to invest in expensive new infrastructure which would otherwise be needed to meet higher demand. Local Economies benefit because low-income families are more likely than the average family to spend money saved from lower energy bills on unmet needs.
- Retrofit of Viking Terrace in Worthington, MN, a study by the National Center for Healthy Housing found that the incidence of specific medical conditions decreased, including: Ear infections in children from 15% to 4%; Adult chronic bronchitis from 10% to 0%; Asthma in adults from 12 to 4%; and Respiratory allergies in children from 15 to 4%.

I. Health and Safety

General Considerations: Building Better EE Programs for Low Income Households,

http://ilsagfiles.org/SAG_files/Meeting_Materials/2017/January_31_2017/Building_Better_EE_Low_Income_ACEEE_March_2016.pdf

- Utilities can work with local housing rehab organizations to improve understanding of which aspects of deferred maintenance and home improvement are critical to address before energy efficiency measures can safely be installed. Housing rehab programs with the mission of improving low-income housing stock can address improvements with an eye toward specifically preparing homes for weatherization. Utilities can develop methods for assessing home qualification before a comprehensive energy audit is performed (as described in the following section) and recommend customers to the appropriate program if weatherization cannot yet be carried out.
- Community Action Partnership, a nonprofit in western Idaho, brings in a social worker to work with households whose needs are beyond the scope of weatherization. With the guidance of the social worker, other resources and programs are found to repair roofs and deal with other home issues to ready the home for weatherization (Rose et al. 2015).
- Opportunity Council in Washington State, uses an initial home visit to assess eligibility for weatherization. During this visit an energy education specialist provides energy education to the clients and installs direct install measures. The specialist also identifies the top three energy-savings priorities in that home. Depending on the condition of the home, the specialist will refer the home to the weatherization program for an energy audit and improvements. This process removes from the pool candidates who would not benefit from further weatherization (about 20% at this organization) (Rose et al. 2015). This approach can help provide initial energy efficiency improvements to homeowners, while assessing whether a house is a good candidate for further improvement. This enables small low-cost measures to be installed for homes that might not be suited for weatherization, but in which there is still an opportunity for

energy education, and that do not have conditions that would compromise certain direct install energy efficiency measures. This approach may also improve the likelihood that homeowners experience a predicted value for energy efficiency improvements that motivates them to eventually complete weatherization improvements.

- Address health, safety, and building integrity issues. Housing deficiencies can prevent low-income energy efficiency upgrades from being completed. Programs should be designed with the flexibility to address minor health and safety issues, and they should develop relationships with local housing rehabilitation organizations to help address larger issues in the homes of program participants.

Funding: Building Better EE Programs for Low-Income Households,

http://ilsagfiles.org/SAG_files/Meeting_Materials/2017/January_31_2017/Building_Better_EE_Low_Income_ACEEE_March_2016.pdf

- National Grid (Rhode Island) - \$500/home
- Pacific Power (Washington) - 50% of the installed-repair costs required to make energy efficiency upgrades possible (homeowner assumes remaining cost)
- Massachusetts program administrators - \$2,500 on an individual home, with an average of \$500/home for the whole program
- New Jersey Comfort Partners - 33% of project cost. For spending over \$500 utility permission is required.
- Dayton Power and Light (Ohio) - 15% of project cost
- Puget Sound Energy (Washington) - 30% of implementing agency's total budget
- Nebraska Energy Office - 15–20% of annual program budget is set aside each year.
- Federal Weatherization Assistance Program - About 15% of program budget; decided at the discretion of states"

J. Incentive Strategies

Phased Improvements:

<http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId=%7BB56F124C-0EB9-417B-9886-74F640EC36A9%7D>

- Whole building energy efficiency improvements and integration of renewables with efficiency may be the optimal approach in some instances to maximize the benefits of the interactions between shell work, appliances, and renewable energy generation; however, many home and building owners may not have the ability to finance whole building upgrades at once. NYSERDA and the utilities should acknowledge this and engage home and building owners to foster the achievement of clean energy improvements over time.
- Recommendation: NYSERDA or the utilities should adopt or develop a tool¹³¹ that engages home and building owners and encourages the phasing in of clean energy improvements over a period of time. This can be expanded to the development of a multi-year “Energy Master Plan” approach for affordable multifamily buildings to guide the phasing of measures in a specific building or portfolio of buildings over time. Incentives could be provided to encourage more comprehensive energy improvements, or to complete improvements over a certain period of time.

High-Usage Priority: <http://www.appriseinc.org/wp-content/uploads/2016/05/IEPEC-Barriers-and-Solutions.pdf>

- Some programs are required to serve all who apply, and are thus more limited in their ability to target high-usage households. However, in these cases, the level of services delivered should be calibrated to the opportunities that are available for energy savings.
- Some homes should not even receive an in-person visit unless a phone screening reveals a particular reason to do so, such as constrained usage by a household that cannot afford the energy bill.
- Homes that are already efficient should be limited to basic measures, perhaps provided through a business reply card mailing for an energy saving kit, or a neighborhood blitz where low cost opportunities are quickly identified and addressed in many homes that are clustered together.
- An abbreviated home assessment can determine whether some of those low-usage homes are in need of greater treatment, as they are low users due to broken heating equipment or affordability issues.
- In general, however, these low usage homes should not receive comprehensive audits and measure installation visits, as greater investments should be reserved for the higher usage homes that have more opportunities for energy savings. In this way, programs can appropriately invest even more where the potential for savings warrants more intensive treatment.

Best Measures: Building Better EE Programs for Low Income Households,

http://ilsagfiles.org/SAG_files/Meeting_Materials/2017/January_31_2017/Building_Better_EE_Low_Income_ACEEE_March_2016.pdf

- Increase electricity savings through high-efficiency products and equipment. The majority of savings from low-income energy efficiency upgrades currently result from weatherization shell measures and direct install measures, primarily lighting, faucet aerators, and showerheads. Programs could rely more heavily on appliances, equipment, and electronics to produce savings. To best serve low-income customers, programs may need to consider more than just high efficiency ratings; they should carefully consider program criteria and qualifying product lists to ensure that customers can find products that meet their needs. This might mean developing program-specific criteria and/or product lists rather than relying on established qualified product lists such as ENERGY STAR®.
- About 33% of low-income households have refrigerators older than 10 years, versus about 26% of non-low-income households (EIA 2013b). Fewer low-income households have ENERGY STAR® refrigerators compared to the general population (29% versus 45%) (EIA 2013b). The age of clothes washers does not differ significantly between low-income and non-low income populations, but low-income households are less likely to have ENERGY STAR washers, with a 24% penetration versus 46% (EIA 2013b). Fewer low-income households use clothes dryers at home than non-low-income households (67% versus 90%).
- Low-income owner-occupied households are more likely to heat their homes primarily with electricity (37% versus 29% for all households). In addition, 4% of low-income owner occupied households use portable electric heaters as their primary heating equipment, while 0% of non-low-income households do. While there are exceptions, space heating with electric resistance heaters (including portable space heaters, electric baseboard heaters, and electric furnaces) is generally more energy intensive. Low-income households are more likely to have electric water heaters (48% versus 38% for all households), which, with the exception of heat pump water heaters, are generally a costlier form of water heating due to greater energy expenditures (ACS 2013).
- Low-income households are less likely to have programmable thermostats. Only 24% of low-income households have programmable thermostats, while 47% of non-low-income households do (EIA 2013b). Relatedly, in the winter heating season, fewer low-income households turn

down the heating temperature when residents are away from home. Forty percent of low-income households reported leaving the temperature at 70°F or above when away, while 29% of non-low-income households reported this (EIA 2013b). Thermostat set points appear to be higher on average in low-income households—about 60% of low-income households reported setting the temperature at 70°F or above, while 30% of non-low-income households reported this. This finding may signal an inability to get sufficient heat and comfort from keeping the thermostat at lower temperatures.

- (1) emphasizing the highest-efficiency products, and (2) identifying and increasing the availability of moderate-price energy-efficient products with the features and sizes of greatest interest to low-income customers. Focusing low-income programs on ultra-high-efficiency appliances maximizes both customer utility bill savings and program energy savings. Manufacturers offer these ultra-efficient products at a range of price points that could meet the needs of low- and moderate-income customers. Programs that provide incentives for ENERGY STAR and ENERGY STAR Most Efficient refrigerators should explore ways to develop low-income-targeted programs that incorporate top-freezer models, which have lower absolute energy use and lower retail prices (Arquit-Niederberger and Frank 2015).
- Developing program-specific criteria and/or product lists rather than relying on the ENERGY STAR program. Many smaller and midsized top-freezer models do not qualify for ENERGY STAR or ENERGY STAR Most Efficient, even though their annual energy consumption is lower than that of comparably sized bottom-freezer and side-by-side models. With lower purchase prices, lower annual energy costs, and potentially more-appropriate size or capacity, these products can be a better fit for low-income households, particularly for smaller households or elderly customers.
- Due to the significant savings over standard electric water heaters, heat pump water heaters are a promising option for integration into low-income energy efficiency programs. Heat pump water heaters use about 50% less energy than a standard electric water heater, which uses an average of 2,876 kilowatt-hours (kWh) per year (York et al. 2015). Cutting electric water heating energy use by half for a low-income household can mean considerable utility bill savings—roughly \$175–200 annually. Heat pump water heater installed cost is typically about \$1,500, whereas electric resistance water heaters cost roughly \$600 (York et al. 2015).
- For homes heating with electricity, high-efficiency electric heat pump systems are promising improvements for yielding significant electric savings for both heating and cooling loads. In particular, ductless split systems, which are common in Europe and Asia, are gaining momentum in the United States (York et al. 2015).¹⁷ Ductless heat pumps are beginning to be integrated into energy efficiency program offerings including low-income programs, particularly in regions where electric space heating and fuel oil dominate, which is where the consumer cost savings potential is greatest. Electricity savings from replacement of electric furnaces with ductless heat pumps could reduce average annual energy use of 6,000 kWh or more to 2,400 kWh, saving 3,600 kWh annually or about \$350 every year (York et al. 2015).
- Offer a range of eligible measures. Programs have traditionally focused on building-shell improvements, but many are now incorporating additional measures into program offerings. Programs must adapt to address new conditions such as more electric plug loads.

K. Energy Efficiency Education

Building Better EE Programs for Low Income Households:

http://ilsagfiles.org/SAG_files/Meeting_Materials/2017/January_31_2017/Building_Better_EE_Low_Income_ACEEE_March_2016.pdf

- During and after the weatherization process, providers can offer post-purchase counseling to new low-income homeowners to help them maintain their investment and prevent delinquency and foreclosure.
- Incorporate customer energy efficiency education. Administrators can build trust within low-income communities and interest in their programs via energy education initiatives and materials. Integrating educational components into programs also improves the realization and persistence of installed measures.
- Post-purchase counseling programs are a resource sometimes available to low-income homeowners. Post-purchase counseling programs assist recent home purchasers and generally take one of two approaches: (1) sustainable homeownership programs, which help homeowners acquire the skills to maintain and improve their housing investment, and (2) delinquency and foreclosure prevention services, which help homeowners who have problems meeting mortgage obligations. Sustainable homeownership programs help homeowners deal with rising housing costs through education and counseling on home maintenance, repairs, insurance, home safety, budgeting, financial management, and avoiding predatory lending. Sustainable homeownership programs and programs delivering energy efficiency improvements can provide mutually beneficial services (Rohe, Cowan, and Quercia 2009).
- Leverage educational materials to reach low-income customers and build community trust and interest in energy efficiency programs. For some low-income people interactions with utilities have been limited to bills, late-payment notices, and shutoff notices, making customers less likely to think of the utility as a source of assistance. Utilities that include multiple initiatives in their program portfolios, including both direct install or energy-saving kit programs and deeper weatherization measures, can incorporate energy-saving tips, education about direct install measures, and guidance on opportunities for deeper savings through utility programs.
- Energy education can help build realization and persistence of energy savings for programs, particularly those that rely on customers to install products that they receive through a program. For example, the efficient-products program through the DC SEU, which distributes LED and CFL lightbulbs to low-income households through food banks and other nonprofit organizations that provide services to these households, had an education component to inform consumers of the benefits of efficient lighting. This took the form of simple and clear messaging about benefits (figure 7), as well as direct education through DC SEU representatives at events at food banks, mobile food markets, and other community gatherings (Glattig 2015).
- Consumers Energy program in Michigan called Building Blocks featured direct interaction with program representatives during energy education workshops and follow-up coaching to encourage customers to install measures in their own homes. In this initiative customers were directly rewarded with incentives (cash and prize drawings) for engaging in the program. Post-program evaluations indicated that almost all customers (near 100% for most measures) followed through with do-it-yourself installations of the products they were trained on, including CFLs, LED night lights, outdoor light motion sensors, aerators, pipe wrap, and showerheads (Johnson et al. 2014).

Energy Literacy, Awareness, and Program Application Process (NY Study):

<http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId=%7BB56F124C-0EB9-417B-9886-74F640EC36A9%7D>

- In the focus groups and surveys conducted by the Working Group, LMI consumers overwhelmingly identified a lack of awareness and understanding of current programs, and

inadequate communications regarding such programs, as a primary barrier to realizing energy savings. The knowledge and information gap has the potential to increase under REV, as new opportunities for procuring and managing energy emerge. LMI customers in particular need to be aware of energy savings opportunities. Likewise, affordable housing owners and managers may be unaware of opportunities for clean energy upgrades that would enhance the energy performance of their buildings. LMI renters should also be equipped to encourage and support their building owners and managers to make clean energy improvements.

- Recommendations:
 - DPS, NYSEERDA, and the utilities should develop a coordinated energy literacy campaign to educate and inform LMI customers and affordable housing owners and managers on energy topics including: understanding the costs of energy; strategies for managing tight household budgets; energy savings tips; available programs, including opportunities for participation in community or shared-solar projects; and Community Choice Aggregation (CCA), where applicable. All materials developed should be multi-lingual and should be made available through multiple avenues. A statewide campaign could result in cost savings, as well as a standard and consistent message to the LMI market segment. Design and implementation of the campaign should include CBOs, local government, and relevant service providers. The State should also develop a framework to evaluate the effectiveness of the components of the literacy campaign and making modifications to the content and delivery, as necessary.
 - NYSEERDA and the utilities should develop an LMI-specific “one-stop shop” online portal that provides homeowners and multifamily building owners and property managers with information on available incentives. This portal should also include an online application process.
 - To avoid confusion about the different clean energy programs and various program administrators, NYSEERDA and the utilities should consider coordinating outreach and co-branding to present the various program offerings in a cohesive and easy to understand format across all utility service territories.

L. Miscellaneous Findings

Demographic surveys/tracking: Lifting the High Energy Burden in America’s Largest Cities, http://ilsagfiles.org/SAG_files/Meeting_Materials/2017/January_31_2017/Lifting_High_Energy_Burden_Energy_Efficiency_for_All_ACEEE_April_2016.pdf

- "Collect, Track, and Report Demographic Data on Program Participation By collecting and making demographic data on program participation public, utilities can assess the extent to which their programs are serving different segments of the population, especially those customers known to experience high energy burdens. Demographic information can inform program design and marketing and outreach strategies. Examples of demographic data that should be incorporated into program evaluation
- Include income level, renter versus owner, multifamily versus single family, and race/ethnicity." Our research indicates that some of the household demographics that should be incorporated into program evaluation for these purposes include: income level, renter versus owner, multifamily versus single family, and race/ethnicity. These data points and/ or evaluations should also be made available to the public for stakeholder review (Kallay et al. 2015).
- To ensure that energy efficiency programs reach all types of households—especially those experiencing high energy burdens—program administrators should examine demographically

identifiable participation gaps in past programs, adjust their program design to target these populations, and continue to collect and analyze these data to measure program success.

Report on Alternative Approaches to Providing Low and Moderate Income (LMI) Clean Energy Services: Service Provider Survey,

<http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId=%7BB56F124C-0EB9-417B-9886-74F640EC36A9%7D>

- Survey was distributed to 60 organizations, including Environmental Justice (EJ), weatherization sub-grantees, 9 community action agencies, and other community-based organizations that provide service to low-income customers. providing the following insights:
 - Outreach and education is important to ensure that customers understand available programs, and can make informed decisions on which clean energy upgrades to invest in;
 - Available programs need to do a better job of coordinating and integrating energy efficiency and renewables to maximize affordability;
 - Income eligibility thresholds can be too restrictive,
 - To reduce energy bills, an emphasis should be on increasing access to clean energy services rather than relying on bill assistance;
 - More utility-non-profit partnerships are necessary to drive affordability in LMI communities;
 - Community-based organizations can play an effective role as messengers by building a good reputation and trust in the community;
 - Respondents identified various programs including EmPower NY, the Weatherization Assistance Program (WAP), the ConEd Multifamily Energy Efficiency Program, and the National Grid Residential Efficiency programs as being helpful in addressing energy affordability for low-income consumers or providing incentives to offset the cost of clean energy upgrades.

Report on Alternative Approaches to Providing Low and Moderate Income (LMI) Clean Energy Services:

<http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId=%7BB56F124C-0EB9-417B-9886-74F640EC36A9%7D>

- Comprehensive report on alternative approaches published February 3, 2017: Report focuses on:
 - Energy Literacy, Awareness, and Program Application Process
 - Program Design
 - Health and Safety
 - Finance and Access to Capital
 - Access to DER and Utility Ownership
 - Integration of Energy Efficiency and Renewable Technologies
 - Access to Energy Consumption Data
 - Community Choice Aggregation
 - Consistency in Income Eligibility Classification
 - Coordination with Other State Agencies

Program Profiles

The American Council for an Energy-Efficient Economy (“ACEEE”) identified the following programs as exhibiting best practices in program design for achieving energy savings in multifamily buildings:

http://ilsagfiles.org/SAG_files/Low_Income/Apartment_Hunters_Programs_Searching_Energy_Savings_MF_Buildings.pdf

1. **Low-Income Multi-Family Retrofit** (Massachusetts) – The Low-Income Multi-Family Retrofit program provides public, nonprofit, and for-profit owners of low-income housing statewide with a one-stop shop for cost-effective energy efficiency improvements. Services include benchmarking tools, energy assessments, technical assistance, and grants for energy

efficiency upgrades. The program is funded by Massachusetts electric and gas utilities and implemented by the Low-Income Energy Affordability Network.

2. **Multifamily Performance Program** (New York) – The Multifamily Performance Program provides per-unit incentives as well as low-cost financing for new construction and retrofits of existing multifamily buildings that achieve 15 percent energy savings from electric and gas. A member of the New York State Energy Research and Development Authority’s network of service providers performs an energy audit and creates an energy reduction plan to identify how to achieve the 15 percent target. Escalating performance incentives are paid to owners for achieving savings over 20 percent.

A New York report on low and moderate income programs reviewed and summarized the following programs: <http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId=%7BB56F124C-0EB9-417B-9886-74F640EC36A9%7D>

2. **EmPower New York**

a. Description:

- i. The EmPower NY program provides no-cost energy efficiency services to households at or below 60 percent of the State Median Income. The program is administered by NYSERDA, is funded through the Clean Energy Fund, and is delivered by a network of more than 200 energy efficiency and weatherization contractors across the State. Improvements provided at no-cost include insulation, air sealing, health and safety measures, efficient lighting replacement, and replacement of inefficient appliances. Each home receives a comprehensive energy audit and in-home energy education to inform customers on options for saving energy within their home. The program closely coordinates with the Weatherization Assistance Program (WAP) in the delivery of energy efficiency services.
- ii. Average project cost: \$4000
- iii. Budget: \$30M
- iv. Customers Served Each Year: 8,750

b. Lessons Learned:

3. **National Fuel Low-Income Usage Reduction Program**

- a. The Low-Income Usage Reduction Program (LIURP) was initiated in September 2007 by National Fuel Gas (NFG) to provide weatherization and energy efficiency services to their low-income customers. NFG has partnered with NYSERDA to deliver the LIURP through the EmPower NY program to leverage the program infrastructure that already existed. Participants receive an energy audit and in-home education and may also receive air sealing, insulation, heating system tune up, and other thermal reduction measures. Because the program is administered with EmPower NY, NYSERDA can bring electric reduction resources to LIURP participants, providing opportunities for comprehensive energy efficiency improvements.
- b. < 1000 customers served each year
- c. Funded at approximately \$6 million a year.

4. **KEDLI Low-Income Energy Efficiency Program**

- a. Low-income customers in the KEDLI service territory had been provided energy efficiency services through the EmPower NY program under EEPS. With the transition to the CEF, the Commission ordered that NYSERDA continue to serve low-income KEDLI customers through EmPower through 2016, and for NYSERDA and KEDLI to pursue alternatives to providing low-income energy services in 2017 and beyond.⁷⁴ In late 2016, KEDLI issued a solicitation to procure a vendor to deliver services. The company expects that the energy efficiency program will include a four tier approach:
 - i. customer outreach, marketing and education will occur in Tier I.
 - ii. Tier II will include a Home Energy Assessment, a Health and Safety Test and the direct installation of several energy efficiency measures such as faucet aerators, low-flow shower heads, thermostats, pipe wrap, etc.

- iii. Tier III will include energy efficiency measures recommended in the Home Energy Assessment and Health and Safety Check such as weatherization measures, heating and hot water system repairs and replacements.
- iv. Tier IV will allow for health and safety and resiliency work that may prevent a customer from receiving energy efficiency services.
- b. This will be a collaborative effort with local human service agencies, the electric utility and local contractors to provide customers with comprehensive coordinated services.
- c. The company expects to serve approximately 2,000 customers a year, with an annual budget of \$1.9 million.

5. Residential Energy Affordability Partnership (REAP) Program

- a. The REAP program is a direct install program offered at no charge to PSEG Long Island customers with an annual income at or below 60% SMI. Services include an energy audit, the replacement of inefficient lighting, low-flow devices, and pipe insulation. Starting in 2017, the customers will also be eligible for shell measures to reduce thermal load, attic and wall insulation. In addition, participants are guided to other non-PSEG Long Island services that can help them with special needs.
- b. 60,324 households have been served to date. PSEG estimates that approximately 2,000 households will be served in 2017, with a budget of \$3.7 million.

6. Assisted Home Performance with ENERGY STAR

- a. The Assisted Home Performance with ENERGY STAR (AHPwES) program is a whole-house energy efficiency program, administered by NYSERDA and funded through the CEF. The program provides incentives for energy efficiency upgrades for households that have an annual income up to 80% of AMI or SMI, whichever is higher, that also pay into the CEF. Eligible customers receive a discount covering 50 percent of the cost of eligible energy efficiency improvements up to \$4,000 per project for single-family homes. Two- to four-unit residential homes with income-eligible residents may qualify for a discount of up to \$8,000. In addition, customers are eligible for a no-cost energy audit and can access low-interest financing options through Green Jobs- Green New York (GJGNY).
- b. This program serves an important service, as it addresses the need for financial support for customers that are over the income eligibility threshold for no-cost energy efficiency services that are available through EmPower NY. Nearly 28,000 homes have received energy efficiency services through AHPwES, since the program inception, with an average annual bill savings of nearly \$500.
- c. For the time period 2016 through 2018, the program is funded at \$8 million a year and is projected to serve approximately 1,600 homes on an annual basis. While low-interest financing is available to fund the balance of the project that is not subsidized, financing requirements such as FICO and debt-to-income ratio can present barriers to financing for some customers.

7. Multifamily Performance Program

- a. NYSERDA's LMI component of the Multifamily Performance Program (MPP) addresses cost barriers experienced by owners LMI properties when implementing clean energy upgrades. The program also increases the awareness of and access to energy efficient solutions for LMI properties by supporting a network of firms that promote the program and clean energy opportunities in affordable multifamily buildings. The program was launched in 2005,⁷⁶ based on the Assisted Multifamily Program, and is currently funded through the CEF. MPP has undergone several program design modifications since inception, and in 2015, applications for new projects were temporarily suspended as a result of high demand for incentives. A redesigned MPP was relaunched in April 2016, offering two options for buildings to improve their energy performance: a targeted option that provides incentives for single measure installations with no minimum energy reduction target, and a comprehensive option that provides incentives for work scopes designed to achieve at least 25 percent whole-building source energy savings. In addition, a high performance offering that provides incentives for deep energy retrofit projects will be made available through a competitive solicitation, to be released in 2017.

- b. To date, the MPP has facilitated energy efficiency upgrades to over 780 affordable multifamily buildings, touching over 120,000 dwelling units. In addition, the program has contributed to the high performance new construction of 400 affordable multifamily buildings, encompassing over 30,000 units. This initiative allocates a total of \$34 million for the period of 2016 through 2018 across the three options. Under the CEF, NYSERDA has a goal to touch approximately 70,000 affordable units through MPP, however since the program re-launch uptake has been slow. NYSERDA is currently examining opportunities for making program modifications to increase uptake of the program.

8. Con Edison Multifamily Energy Efficiency Program

- a. Through the Multifamily Energy Efficiency Program, Con Edison provides in unit and common area direct install measures at no cost for both market rate and affordable multifamily buildings. Affordable buildings are eligible for in-unit direct install measures including LED lighting, low-flow devices, and thermostatic radiator valves. Other no-cost measures include air sealing and boiler clean and tunes. Building surveys and custom assessments are also provided at no cost to the building owner. Additional electric and gas measures are eligible for incentives.
- b. Affordable housing customers must show proof of subsidy or rent roll and can receive higher incentives. The program has been in operation since 2010, with total electric and gas budgets both the affordable and market rate components equaling \$21 million a year. The Program has served 6,000 buildings with 94,000 MWh and 975,000 Dth in savings since inception.
- c. For calendar year 2016, 1,200 buildings received services with savings estimates of 30,000 MWh and 150,000 Dth. ConEd estimates that 20% of program activity is attributable to affordable multifamily buildings.

9. NYSERDA New Construction

- a. NYSERDA's new construction program promotes high performance for affordable low-rise and high-rise multifamily new construction projects. Support includes financial incentives to overcome the incremental cost of building to a higher performance threshold, such as passive house or net zero energy standards; providing technical assistance, tools and resources to builders, developers, architects, and engineers on high performance new construction techniques, with an emphasis on integrated design solutions and pre-development cost reductions; and strengthening the capacity of clean energy partners in the building design, construction, and performance verification.
- b. This initiative allocates a total of \$21 million for the period of 2016 through 2018.

10. RetrofitNY

- a. Through RetrofitNY, NYSERDA seeks to develop a sustainable market for deep energy retrofits in multifamily buildings that are scalable and financeable. Starting with the affordable housing sector, NYSERDA will work with A&E firms, manufacturers, and construction entities to develop scalable technical solutions to enable the deep retrofit of occupied multifamily buildings to approach net-zero levels of energy performance. Substantially reducing the energy consumed by multifamily buildings will result in operational cost reductions for building owners, which will help preserve affordability for tenants. In addition, deep retrofits will deliver positive impacts on resiliency, tenant comfort and health.
- b. To facilitate the development and adoption of the technical solutions, NYSERDA will organize design and build competitions and will test the best solutions through pilot activities, where design solutions will be refined. To enable large scale implementation of successful designs, NYSERDA will identify and address regulatory issues, facilitate the development of new private sector financing products, and work to develop the New York supply chain for high-efficiency building components.
- c. RetrofitNY is funded through the CEF, with a budget of \$30 million over 10 years. The investment plan for the initiative was approved by DPS Staff in August 2016 and NYSERDA expects activities to launch in 2017.

11. Central Hudson Gas & Electric Community Lighting Program

- a. Through the Community LED Lighting Program, Central Hudson provides LED lightbulbs at no cost to low-income eligible customers. Central Hudson partners with The United Way agencies to determine income eligibility and distribute a maximum of 8 Philips LED lightbulbs

to qualified customers. Recipients must provide verification of service address located in Central Hudson territory. The program has been in operation since September 2016. The Program will provide 20,000 LED's to over 3,000 households saving recipients 521 MWh.

12. Utility Rebates

- a. In addition to the ratepayer-funded programs directed towards the LMI segment, LMI customers are also eligible to participate in utility rebate programs. Each utility offers rebates on energy efficient appliances and services. While utilities do not track the level of LMI participation in rebate programs, anecdotal evidence suggests that participation is low, primarily due to the fact that rebates require a cash contribution. In other cases, renters may not have the ability to participate in the utility rebate programs because appliances are provided by the landlord.

13. Financing - Green Jobs - Green New York/On-Bill Recovery

- a. Customers can finance energy efficiency, PV, and solar thermal installations through the Green Jobs - Green New York (GJGNY) revolving loan fund. The GJGNY financing program includes two low-interest loan products that are subsidized for LMI customers: a Smart Energy Loan, an unsecured loan that is repaid in installments to NYSERDA's loan servicer; and an On-bill Recovery (OBR) Loan,⁸⁰ repaid through an installment charge on the customer's utility bill.⁸¹ OBR loans have strict cost-effectiveness requirements associated with them, meaning that on average, the annual cost of the energy improvements are no more than the projected bill savings to achieve a "bill neutral" approach to financing. Both loan options offer expanded credit qualification criteria, a Tier 2 option, for applicants that do not qualify for a loan based on more traditional criteria to qualify for GJGNY loans.
- b. The New York State 2015-2016 budget bill required NYSERDA to take steps to encourage and increase participation of and issuance of loans to LMI households under GJGNY and to establish a working group (GJGNY LMI Working Group) to provide recommendations on options for increasing participation of LMI households in GJGNY. ⁸² The GJGNY LMI Working Group identified a number of barriers to accessing the GJGNY financing options by LMI customers⁸³ and also addressed the sustainability of the loan fund.
- c. Among the factors that limit the effectiveness of the GJGNY financing option, cost effectiveness requirements and underwriting criteria can limit the eligibility of some customers. Low electric and gas rates; necessary health, safety, and structural improvements that do not deliver energy savings, and reducing program incentives (NY Sun) can extend the payback period on loans and impact the ability of the project to meet the cost-effectiveness requirements. Underwriting criteria such as FICO requirements and debt-to-income ratio also limit the number of customers that would be eligible for the financing.
- d. While subsidized interest rates and alternate qualification criteria help address the gap for financing for LMI households, there are concerns about the sustainability of the loan fund. The combination of the low interest rates, long loan terms, and an increasing rate of demand for loans for higher income borrowers has an impact on the ability of the loan fund to continue to lend at low-interest rates. The interest rate is not adequate to cover the full cost of providing the loans and the rate of replenishment of the loan capital is not adequate to keep up with demand for new loans. To address the sustainability of the loan fund, NYSERDA implemented modifications to the interest rates for GJGNY finance products in September 2016, increasing the interest rates for higher income households.
- e. Through October 2016, NYSERDA reports that 17,690 residential GJGNY Loans have closed, 12,373 have been for residential energy efficiency projects.⁸⁴ 32 percent of the energy efficiency loans have gone to Assisted HPwES customers, representing 23.9 percent of the total loaned funds. Of the loans closed for Assisted HPwES customers, 28.7 percent met Tier 2 qualification standards. Since the launch of OBR, 25.6 percent of the Assisted HPwES customers who access financing use OBR Loans.

14. Financing - New York Green Bank

- a. Administered by NYSERDA, NY Green Bank is a state-sponsored investment fund dedicated to overcoming current obstacles in clean energy financing markets and increasing overall capital availability through various forms of financial support. NY Green Bank collaborates with

private-sector clients to address and alleviate specific gaps and barriers in current clean energy capital markets through a variety of approaches and transaction structures. NY Green Bank is market responsive in the solutions it provides, although there are several “product types” frequently requested from NY Green Bank to address gaps and barriers in clean energy financing markets, including: credit enhancements to mitigate perceived financial risks; warehousing/aggregation of smaller projects on a short-term basis in order to build larger portfolios which are more attractive to many private sector capital providers; asset loans and investments to support long-term financial products; and, composite products to combine various financial products in one transaction. Additional information on these products can be found on NY Green Bank’s website.

- b. With regard to support for LMI initiatives, NY Green Bank has engaged several counterparties to explore opportunities to facilitate clean energy projects that benefit LMI consumers. One area that has been explored by the NYGB entails working with local lenders, Community Development Financial Institutions (CDFIs) and regional banks to extend credit to a project sponsored for low-income households for the purpose of subscribing to a Community DG project. NY Green Bank could perform a “warehousing” function in advance of the potential development of a secondary loan market for Community DG equity share purchasing loans to LMI consumers. Another option -- one that has been suggested to NY Green Bank by a number of counterparties -- is to provide credit enhancement for LMI customers as one part of a broader portfolio of end users being built out by a sponsor or project developer.

15. Financing - Property Assessed Clean Energy (PACE)

- a. Property Assessed Clean Energy (PACE) is a financing mechanism that enables low-cost, long-term funding for energy efficiency and renewable energy projects that is repaid through an assessment on the property’s tax bill. PACE financing has been available for commercial properties in New York,⁸⁵ but residential PACE has not been an option until recently. Due to concerns of mortgage lenders including Freddie Mac and the Federal Housing Finance Agency, that the PACE assessment would subordinate the mortgage, PACE was not an option for homeowners. However, in July 2016, the HUD issued guidance that enabled residential PACE financing and outlining how properties with PACE assessments can be purchased or refinanced with Federal Housing Administration (FHA) insurance. The HUD guidance allowed the PACE assessment to become subordinated to mortgages, and stay with the property. While residential PACE has not yet been adopted in New York State, it may provide another option to address finance barriers for all homeowners, including LMI.

16. Community Engagement

a. Consumer Education Program for Residential Energy Efficiency

- i. NYSERDA established an energy literacy and awareness campaign “Consumer Education Program for Residential Energy Efficiency (CEPREE)” in 2002. CEPREE is designed to raise awareness, educate the general public, with an emphasis on the low-income population, and increase the adoption of energy efficiency behaviors and practices at home, at work and within communities. CEPREE is implemented through a series of no-cost workshops that are open to the public, and targeted at LMI customers. From October 2002 through February 2016 there were 7,275 workshops across the State, with 82,404 attendees.⁸⁶ In the consumer focus groups conducted by the LMI Working Group, many consumers mentioned the value provided by these workshops.

b. Low-Income Forum on Energy

- i. The Low-Income Forum on Energy (LIFE) initiative was established by the PSC in 1998, as New York prepared to move to a more competitive retail electric market. The PSC recognized the importance of identifying, discussing, and addressing issues of particular concern for low-income consumers given the changing energy marketplace. To that end, the PSC established LIFE to provide a forum for public dialogue on these issues and to assess the intended and unintended consequences of energy policy decisions on the low-income population. The initiative is administered by NYSERDA in partnership with the NYS DPS, and is guided by a Steering Committee comprised of 22 organizations that represent program administrators, community-based

organizations, utilities, and advocates. The initiative provides a venue for information exchange and collaboration by hosting meetings and conferences, webinars, and distribution of an electronic newsletter.

c. Consumer Education and Outreach through Utility Companies

- i. Utilities have implemented outreach and education programs for decades. These programs provide customers with information on their rights and responsibilities, ways to reduce energy usage, and availability of budget billing, deferred payment arrangements and other options available to help customers manage their utility bills. Clean energy technologies are driving a shift to a more consumer-centric business model; however, residential customers still struggle to understand or become motivated to participate in clean energy programs. Consumer education consequently must be a higher priority for utilities today than it has been in the past.
- ii. In addition, for LMI households, increasing energy literacy can be a key to maintaining utility service. Low income energy education, including counseling in household budgeting and financial management, energy savings actions, and information on how to participate in clean energy projects, helps engage and involve the customer in the process, and can have a lasting impact on affordability.

17. California Low-Income Weatherization Program: California has a program¹⁰⁰ that combines the use of Low Income Weatherization Program funds and Cap & Trade greenhouse gas reduction funds to provide efficiency and solar (PV and thermal) to large affordable multifamily buildings. Energy analysis and benchmarking of buildings is provided for free by the program, which serves buildings with 20 or more units (a waiver is possible for buildings with fewer units). The program provides funds to properties that meet affordability requirements of having 2/3 of households at or below 80% Area Median Income and that are located in specific “disadvantaged communities,” which have been identified using census tract data. The program provides incentives for efficiency and solar although property owners are expected to contribute capital as well. Efficiency measures must equate to at least a 15% modeled energy savings above existing conditions and can be for common area and/or in-unit upgrades with lower incentives for reducing owner energy bills versus tenant energy bills. The incentives are provided to the property owner after completion of the work.