Welcome

Conservation Applied Research & Development (CARD)
Webinar
Opportunities for Making MN Low Income Programs more Effective

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Webinar Basics

• Attendees in listen-only mode
• Type your questions into Question Box
• Questions addressed at end
• Webinar recorded & archived online
• Handout: webinar slide deck
• Purpose to help Minnesota utilities achieve 1.5% energy savings goal by:
  • Identifying new technologies or strategies to maximize energy savings;
  • Improving effectiveness of energy conservation programs;
  • Documenting CO₂ reductions from energy conservation programs.

Minnesota Statutes §216B.241, Subd. 1e

• Utility may reach its energy savings goal
  • Directly through its Conservation Improvement Program (CIP)
  • Indirectly through energy codes, appliance standards, behavior, and other market transformation programs
CARD RFP Spending by Sector thru mid-FY2017

- 8 Funding Cycles
- Nearly 380 proposals
- 92 projects funded
- Over $21 million in research

- Commercial (36), 37.6%
- Residential 1-4 unit (15), 18.7%
- Industrial (10), 8.6%
- Multifamily 5+ unit (4), 6.6%
- Agricultural (6), 3.1%
- Multi-sector (21), 25.3%
• Study Purpose
  
  • Give organizations a better understanding of how the Low-Income Conservation Improvement Programs operate with the goal of identifying ways to increase the efficiency and effectiveness of those programs.

• Study Design
  
  • Part 1 - Policy Analysis of LI CIP Regulatory Framework
  • Part 2 - Assessment of IOU and COU LI CIP Programs
• Study Reports

• Low-Income CIP Evaluation Study – Summary Report

• CIP Low-Income Spending Requirements – Regulatory and Policy Analysis for IOUs

• CIP Low-Income Spending Requirements – Regulatory and Policy Analysis for COUs

• Low-Income CIP Program Assessment – Process Evaluation for IOU Programs

• Low-Income CIP Program Assessment – Process Evaluation for COU Programs
Webinar Topics

• **Topics**
  • Methodology
  • Low-Income Program Context
  • Policy Analysis Findings and Recommendations
  • IOU Program Findings and Recommendations
  • COU Program Findings and Recommendations

• **Approach**
  • Big Picture – What are major LI CIP accomplishments and the best opportunities for enhancing LI CIP Performance?
  • Details – What can you learn from a detailed examination of the published reports?
• **Data Collection and Analysis**

  - **CIP Documents** – Statute(s), Rules, regulatory filings, guidance documents, and other communications.
  - **In-Depth Interviews** – Department of Commerce CIP, WAP, and EAP units. IOU low-income program managers, COU low-income program managers, IOU service providers, and COU service providers.
  - **Low-Income Context** – Census population statistics and WAP and EAP program statistics
Topic #1 - Low-Income Program Context

• Low-Income Households – Number of households and their characteristics from the 2015 census data

• Public Energy Assistance Program – Amount of EAP funding and clients for 2016

• Public Energy Efficiency Programs – Amount of EAP and WAP funding and clients for 2016
Low-Income Households – Total

- **Estimated Low-Income Population (2015)**

  - Low-Income Households: 508,000 (24%)
  - Non-Low-Income Households: 1,639,000 (76%)
• *Estimated Low-Income Households by Owner/Renter Status (2015)*

- **Renter**: 57%
- **Owner**: 43%
• **Estimated Low-Income Households by Housing Unit Type (2015)**

- Single-Family: 50%
- Large Multifamily (5+ units): 36%
- Small Multifamily (2-4 units): 8%
- Manufactured Housing: 6%
Low-Income Households – Main Heating Fuel

• Estimated Low-Income Households by Main Heating Fuel (2015)
Energy Assistance Statistics

• Energy Assistance (EAP) - 2016
  • $84 Million in LIHEAP benefits to 133,000 clients

• Utility ratepayer funded low-income programs
  • Funding and participation not documented
WAP and EAP Energy Efficiency Funding and Clients

• **Energy Efficiency Services**
  
  • EAP Energy Related Repair (ERR) - $6.0 million to deliver services to 4,700 households in FY 16

  • EAPWx – EAP Transfer to WAP – $10.2 million to deliver services to 1,073 households in FY 16

  • Weatherization Assistance Program (WAP) - $10.0 million to deliver services to 1,052 households in PY 16
Low-Income Energy Efficiency Programs

• Program funding sources for energy efficiency services

- WAP $10.0M (28%)
- Natural Gas IOU LI CIP $5.0M (14%)
- Electric IOU LI CIP $2.9M (8%)
- COU LI CIP $2.2M (6%)
- EAPWX $10.2M (28%)
- LIHEAP ERR $6.0M (16%)
Research Questions

• #1 – Which regulatory requirements are clear and consistent to the Department and the utilities? Do the utilities fulfill these requirements?

• #2 – Where are the regulatory requirements ambiguous or inconsistent? What is the source of the ambiguity or inconsistency? How does that affect the ability of utilities to fulfill those requirements?

• #3 – Where do the Minnesota regulatory requirements meet or exceed low-income best practices and where do they fall short?
Clear and Consistent Policies – Spending and Reporting

• Low-Income Spending
  • How much is each utility required to spend on low-income programs? – Statute
  • How is the amount that a utility is required to spend calculated? – Order

• Plans and Reports
  • How and when should plans and reports be filed – Rules, Utility Filings, Guidance
  • What procedures are utilities allowed to use to measure and report on energy savings – Guidance on TRM
Clear and Consistent Policies – Program Design and Implementation

• Program Design and Implementation
  • Low-Income Multifamily – Guidance document
  • Energy Savings from Delivered Fuels – Guidance document
• Low-Income Spending
  • Can IOUs count verified spending on low-income households served by programs that are not listed as Low-Income Segment Programs?
  • Can all COUs count “estimated” residential spending toward their low-income spending requirement?

• Plans and Reports
  • Are IOUs required to report information on renters that participate in low-income segment programs?
  • Are IOUs required to report information on low-income households and renters that participate in residential and business segment programs?
Recommendations on Policy Issues – Spending and Reporting Examples

• Low-Income Spending
  • What counts? - *Count programs the give higher incentives to low-income customers.*

• Planning and Reporting
  • What information to report? – *Focus on guidance that increases ability of utilities to make apples to apples comparisons. For example, ensure that reports include information on both the number of low-income customers served and the number of measures installed.*
• Building Owner Contributions – What are the requirements, if any, for building owner contributions?

• NEAT SIR Calculation – Many utilities co-fund WAP jobs. Are they allowed to pay the WAP service provider to install measures that do not have a Savings to Investment ratio of less than 1.0?

• Health and Safety Spending – Are utilities allowed to pay for health and safety measures with LI CIP funds? If so, what types of measures and are there any limits on spending?

• Group Quarters – Are there any types of group quarters (e.g., homeless shelters, halfway houses, domestic violence shelters) that can participate in LI CIP programs?
Recommendations on Policy Issues – Program Design Example

• Program Design Guidance - *Examples*

• Measure Selection

  • Issue – Utilities want WAP service providers to install measures that they perceive are cost-effective, but that the NEAT audit says have a Savings to Investment Ratio of < 1.0

  • Technical Note – DOE WAP Rules do not allow buy downs of the SIR for single family homes (1-4 units), but do allow WAP service providers to install measures if leveraged funding sources (utilities and building owners) pay 100% of the cost even if the SIR is < 1.0.

  • Recommendation – Decide whether to adopt that policy and furnish simple guidance document that informs utilities and service providers of what is allowed and what is not allowed.
Recommendation on Policy Issues - Process

• Develop a collaborative procedure that ...
  • Furnishes a forum for utilities and service providers to raise issues and ask questions.
  • Identifies priority issues for consideration by all interested parties.
  • Looks for solutions that simplify program design and encourage utilities to innovate.

• To the extent possible avoid ...
  • Making policy decisions in the context of individual utility filings
• Spending
  • Having clear and consistent requirements for spending amounts furnishes all parties with a higher level of predictability and is beneficial to program planning and implementation.

• Reporting
  • Requiring utilities to furnish detailed reports on program funding, design, implementation, and projected energy savings is a best practice in that it increases the transparency of these important expenditures of ratepayer funds.

• Utility Participation
  • Making low-income program design and implementation the responsibility of the utilities has important benefits in terms of program innovation and utility engagement.
• Health and Safety
  • Assessment Protocols – Not consistent
  • Spending Guidelines – Policy unclear

• Quality Control Procedures
  • Protocols – Not consistent
  • Third Party Inspections – No reports to utilities

• Evaluation, Measurement, and Verification
  • M&V Protocols – Only Xcel has specified procedures
  • Evaluation – No specifications from Department
• Health and Safety
  • Standardized Assessment Protocols
  • Clear Guidance on Allowable Spending

• Quality Control Procedures
  • Require Standard Protocols
  • Require Third Party Inspections

• Evaluation, Measurement, and Verification
  • Specify M&V Protocols
  • Require Evaluation of Program Processes and Impacts
Policy Analysis – Rationale for Low-Income Programs Best Practice Recommendations

• Health and Safety
  • Assessment Protocols – Protect Low-Income Customers
  • H&S Spending – H&S Investments Can Increase Savings

• Quality Control Procedures
  • Standard Protocols – Protect Low-Income Customers
  • Third Party Inspections – Protect Ratepayer Investments

• Evaluation, Measurement, and Verification
  • M&V – Improve Quality of Savings Estimates
  • Evaluation – Identify Best Practices for Replication
Topic #1 & #2 Questions?

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Send us your questions on Topic #1 or #2 using GoToWebinar question box
• Natural Gas IOU Programs
  • Five natural gas IOUs
  • 2014 Spending = $5,036,022 / Requirement = $4,162,920
  • Programs served as many as 5,817 customers
  • Delivered weatherization and equipment

• Electric IOU Programs
  • Three electric IOUs
  • 2014 Spending = $2,930,620 / Requirement = $2,198,511
  • Programs served at least 5,866 customers
  • Delivered lighting, appliances, equipment, & weatherization
IOU LI CIP Program Spending by Utility in 2014

**Natural Gas IOUs**
- Xcel: $1,791,460 (36%)
- MERC: $950,752 (19%)
- GPNG: $69,905 (1%)
- GMG: $16,622 (<1%)
- CPE: $2,207,285 (44%)

**Electric IOUs**
- Xcel: $2,222,628 (76%)
- Minnesota Power: $565,405 (19%)
- Otter Tail Power: $142,588 (5%)
Types of IOU LI CIP Programs

• Comprehensive Programs
  • Protocol – Separate assessment, measure installation, and inspection visits to home / building
  • Measures – Funding source pays for all cost-effective measures

• Direct Install Programs
  • Protocol – Assessment and installation in one visit
  • Measures – Funding source pays for limited set of measures

• Rebate
  • Protocol – Contractor installs, End user applies for rebate
IOU LI CIP Spending by Type of Program (2014)

**Natural Gas IOUs**
- Comprehensive: $4,281,138 (85%)
- Direct Install: $472,454 (9%)
- Measure Rebates: $282,432 (6%)

**Electric IOUs**
- Comprehensive: $1,828,672 (62%)
- Direct Install: $1,101,949 (38%)
Types of IOU LI CIP Programs Providers

- **WAP Service Provider** – Nonprofit organization that also delivers WAP services (Example: Semcac Community Action Agency)

- **Other Non-Profit** – Nonprofit organization that does not deliver WAP services (Example: Energy Cents Coalition)

- **For Profit** – For profit organization that does not deliver WAP services (Example: Franklin Energy)

- **Utility** – Utilities sometimes directly administer rebate programs.
IOU LI CIP Spending by Type of Provider (2014)

**Natural Gas IOUs**
- Non-profit organization (non-WAP) $1,808,082 (36%)
- For-profit organization $662,259 (13%)
- Utility $361,715 (7%)
- WAP service provider $2,203,968 (44%)

**Electric IOUs**
- For-profit organization $806,748 (27%)
- Non-profit organization (non-WAP) $577,904 (20%)
- WAP service provider $1,545,970 (53%)
Natural Gas IOU LI CIP Programs

- CPE LI CIP spending by program (2014)

  - Weatherization $1,779,574 (81%)
  - Rental Efficiency $65,996 (3%)
  - Heating System Tune-Ups $79,283 (4%)
  - Non-Profit Affordable Housing $163,593 (7%)
  - Multifamily Building $118,839 (5%)
Electric IOU LI CIP Programs

- Xcel Electric LI CIP spending by program (2014)

- Multifamily Energy Savings Program: $806,748 (36%)
- Home Energy Savings Program: $1,120,679 (51%)
- Low-Income Home Energy Squad: $295,201 (13%)
CPE (Natural Gas) & Xcel (Electric)
LI CIP Spending by Owner/Renter (expected 2017)

CPE (Natural Gas)
- Owner: $2,802,118 (83%)
- Renter: $559,514 (17%)

Xcel (Electric)
- Owner: $1,079,274 (46%)
- Renter: $1,283,396 (54%)
CPE (Natural Gas) & Xcel (Electric)
LI CIP Spending by Building Type (2014)

CPE (Natural Gas)
- Single-Family: $2,088,446 (95%)
- Multifamily: $118,839 (5%)

Xcel (Electric)
- Single-Family: $1,415,880 (64%)
- Multifamily: $806,748 (36%)
• CPE / Xcel / MERC Multifamily Programs – Use Guidance to serve a large number of low-income renters.

• CPE Non-Profit Affordable Housing – Helps to increase energy efficiency in newly built or renovated homes.

• CPE Rental Efficiency – Focuses on recruitment of owners of low-income rental housing.

• Xcel Low-Income Home Energy Squad – Furnishes direct install services to large numbers of low-income households.

• MERC 4U2 – Delivers services to working poor households and to low-income households not participating in EAP or WAP.
Natural Gas IOU LI CIP Programs - Innovative Programs - Cautions

• CPE / Xcel Multifamily Programs – How do owner incentives compare to other programs? Why aren’t these programs included in low-income segment?

• CPE Non-Profit Affordable Housing – Are non-profit housing organizations using WAP and/or BPI standards?

• CPE Rental Efficiency – How do owner incentives compare with other programs? Are contractors using WAP and/or BPI standards?

• Xcel Low-Income Home Energy Squad – What are the measured energy savings for this program?

• MERC 4U2 – What is the cost of recruiting households that do not participate in EAP or WAP? What are the measured energy savings for this program.
• Standards – Department and IOUs should work together to develop standards for health and safety assessments and quality control that should be applied across all programs.

• EM&V – Department and IOUs should work together to develop M&V standards and Evaluation specifications that better document the actual savings of different program approaches compared to the costs of program implementation.

• Program Objectives – All parties should work toward development of LI CIP performance objectives with respect to types of clients and buildings served.

• Innovation Forum – All parties should work toward development of a forum for helping both IOUs and COUs share information about innovative program approaches that could be replicated by other utilities.
Topic #3 Questions?

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Topic #4 – COU LI CIP Programs

• Electric COU Programs
  • 141 Electric COUs subject to LI CIP requirements in 2014
  • 2014 Spending = $2,133,699 / Requirement = $2,580,699
  • Met requirement with estimated low-income spending
  • Delivered lighting, appliances, equipment, and weatherization
  • Some COUs served delivered fuel main heat customers

• Natural Gas COU Programs
  • Six natural gas COUs subject to LI CIP requirements in 2014
  • 2014 Spending = $42,823 / Requirement = $83,615
  • Met requirement with estimated low-income spending
  • Delivered equipment and weatherization
Electric COU LI CIP Programs

• Organizational Structure - Aggregators
  • Generation and Transmission Power Cooperatives – Four G&T cooperatives serving 53 electric cooperatives
  • Municipal Power Agencies – Five municipal power agencies serving 55 municipal electric utilities
  • Independent Power Cooperatives and Municipal Utilities – 33 independent electric COUs

• COU LI CIP Performance – Performance more often depends on effectiveness of Aggregator rather than on the size of the COU
• COU Perspective

• Average spending requirement is small - $15,000
• Staff capacity and expertise is limited
• Service territories are large / number of low-income customers is small
• WAP service providers are usually the best choice for service delivery
• Some WAP service providers meet or exceed commitments / others do not
• WAP Service Provider Perspective

  • Average spending requirement is small - $15,000
  
  • It is challenging to align WAP service provider territory with COU service territory, making average contract even smaller than $15,000
  
  • Almost all COU funding is electric, when measures restricted to lighting and appliances, average investment per home is small compared to spending requirements
  
  • Some COUs are unwilling to pay enough to cover program management costs
COU LI CIP Programs - Recommendations

• Aggregator Contract Templates improve the consistency of contracts and allow for negotiations on contract terms.

• Building on examples of successful COU / WAP service provider relationships to help all organizations find solutions that serve low-income customers.

• Engagement of Department’s CIP and WAP units with aggregators, COUs, and WAP service providers to communicate WAP requirements and help establish performance standards.
COU LI CIP Programs – Recommendation for Dedicated Programs

• Department Guidance – COUs can assume that low-income households participate in their residential programs at the same rate as they are found in the population.

• Recommendation – COUs should be encouraged to meet spending requirements through dedicated programs and should be furnished with more realistic estimates of the low-income participation in residential programs.
Topic #4 Questions?

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Conservation Applied Research and Development

Funds projects to identify new technologies or strategies to maximize energy savings, improve the effectiveness of energy conservation programs, or document the carbon dioxide reductions from energy conservation projects.

Background
The Next Generation Energy Act of 2007 (the Act) established energy conservation as a primary resource for meeting Minnesota’s energy needs while reducing greenhouse gases and other harmful emissions. The Act also established a savings goal of 1.5 percent of annual retail electricity and natural gas sales for all utilities in the state. The utilities may reach this annual goal directly through its utility Conservation Improvement Program (CIP) and, indirectly, through energy codes, appliance standards, behavioral and other market transformation programs.

To help utilities reach their energy savings goal, the Act authorizes the commissioner to assess utilities $3.600,000 annually for grants for applied research and development projects:

- $2,600,000 for the Conservation Applied Research and Development (CARD) program through which Commerce awards grants in a competitive Request for Proposal (RFP) process.
- $500,000 for the Center for Sustainable Building Research to coordinate activities related to Sustainable Building 2030 (SB2030).
- $500,000 for the Clean Energy Resources Teams (CERTs) for community energy technical assistance and outreach.

Webinar Recording & Final Report available in few weeks

R&D Web Page (https://mn.gov/commerce/industries/energy/utilities/cip/applied-research-development/)
Upcoming CARD Webinars:

- **Jan 25**: Evaluation of commercial gas dryer retrofits
- **Jan 31**: Field study of an intelligent, networked, retrofittable DHW control
- **Feb 6**: Evaluation of demand-based controls for DHW recirc. Systems
- **Feb 22**: Compressed air demand reduction through air tool replacement

**Commerce Division of Energy Resources e-mail list sign-up**

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