Midwest Energy Codes Project

2014 Building Technologies Office Peer Review

MEEA

Midwest Energy Efficiency Alliance

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

Isaac Elencave,ielnecave@mwalliance.org
Midwest Energy Efficiency Alliance

Project Summary

Timeline:

Start date: April 1, 2012

Planned end date: April 1, 2014

Key Milestones (insert 2-3 key milestones and dates)

1. Adoption of 2012 IECC in Iowa; March 2014
2. Completion of Illinois Program Code Compliance Utility Plan: January, 2014
3. Establishment and Facilitation of Nebraska Code Compliance collaborative; April, 2013 (ongoing)

Budget:

Total DOE $ to date: $730,000

(including FY14 funding)

Target Market/Audience:

Region: 13 Midwest States

Audience: Utilities, Energy Code Officials, Homebuilders, Architects, Engineers, City Officials

Key Partners:

ComEd, Nicor Gas, Peoples & North Shore Gas, Ameren	Nebraska Dept. of Energy
Illinois DCEO	City of Chicago
DTE Energy	Minnesota Dept. of Commerce
Fresh Energy	BCAP
Sierra Club	NASEO

Project Goal:

The focus of this project is to maximize the energy savings from improved building energy efficiency. This is done by encouraging the adoption of the 2012 IECC in as many jurisdictions as possible (or the most stringent alternative), establishing a strong, well funded code compliance infrastructure and supporting the adoption and implementation of policies designed to accurately measure building energy use.

Purpose and Objectives

Problem Statement:

- Adoption and implementation of energy building codes faces significant opposition from powerful stakeholders
- Immediate benefits of energy codes not readily apparent
- Energy code adoption efforts require in-depth technical knowledge of building systems and methods of calculating energy savings
- Compliance requires a significant resources in staff and time (which most jurisdictions lack)
- Actual building performance is mostly unknown. Building performance data (benchmarking) is necessary to help determine subsequent generations of code requirements.

Purpose and Objectives

Target Market

New construction (both residential and commercial) throughout the 13 state Midwest Energy Efficiency Alliance region.

Annual Potential Energy Savings: 10.165 Billion Btus

(equivalent to energy use of 115,000 households)

Audience

- Utilities
- Code Officials
- City Officials
- State Energy Officers
- Energy Raters
- Energy Advocates
- Homebuilder
- Engineers,
- Architect
- State Code Officer
- General Contractors

Potential/Planned Results

- Significantly greater energy efficiency in buildings across the Midwest through the more stringent energy codes at the state and local level.

- Code adoption will be coupled with improved energy code compliance through a more robust and effective energy code compliance infrastructure.

- Additionally, the project will result in enhanced data gathering capabilities through the adoption and implementation of benchmarking ordinances across Midwest cities and states.

Purpose and Objectives

Measuring Achievement Across Multiple Tiers

1. Adoption of energy codes across the region which will result in an increase in potential energy savings for all new construction
2. Establishment of EEPS Funded Code Compliance Programs which will include program elements designed to foster increased compliance, such as
   - Third Party Enforcement
   - Code Collaboratives
   - Circuit Riders
   - Administrative Improvements
   - Equipment Leasing/Rentals
   - Code Compliance Studies
3. Establishment of Benchmarking ordinances (both local and state)
   - Enhanced energy savings due to reporting of energy use
   - Enhanced ability to target areas for energy efficiency improvement

Purpose and Objectives: Project Endpoints

Adoption

Half of the region's population covered by the 2012 IECC

Compliance

Increase annual funding for compliance improvement by $10 million across the Midwest region.

Benchmarking

Additional benchmarking ordinances cover jurisdictions totaling over 1 million residents.

Purpose and Objectives: Project Endpoints

Near Term Objectives

- Builders/Other construction stakeholders more familiar with these requirements

Intermediate Term Objectives

- Builders/Other construction stakeholders incorporate these requirements
- Technologies/Products for more energy efficient homes become more affordable/available
- Builders will use energy efficiency as marketing tool

Long Term Objectives

- Building community becomes accepting of requirements and becomes constructive partners in development/adoption/ implementation of new standards
- As benefits are disseminated, consumer demand will ultimately drive continual improvements in building efficiency

Approach

General

Technical Resources

- Conducting Research
- Creating Fact Sheets
- Writing White Papers

Outreach and Education

- Maintaining Dialogue with Stakeholders and Building Coalitions
- Involving MEEA Members, as needed and appropriate
- Disseminating Technical and Policy Information
- Spreading Information across Multiple Channels
- Facilitating Networking Opportunities

MEEA focuses on building up capacity around the Region

Approach

Utility Programs

- **Facilitation**
  - Bring Together Utilities to Work in Concert - Maintain Working Relationship Throughout Process
  - Educate Other Stakeholders to Minimize Conflict
  - Facilitate Development of Program Plan Template
- **Technical Resource**
  - Develop Potential Energy Savings
  - Develop Potential Peak Demand Reductions
  - Establish Program Elements
  - Provide Examples for Attribution
  - Develop Methodology for Allocation Among Utilities

Ultimately Achieve Consensus Among Utilities on Savings, Elements, Attribution and Allocation

Approach: Key Issues

Code Adoption

- Countering Innovative Approaches to Opposing Adoption
- Developing a Long Range Strategic Plan for Code Adoption

Code Compliance

- Securing Adequate Funding for Energy Code Compliance
- Developing a Replicable Methodology for Establishing a Code Compliance Utility Program
- Bringing Together All Stakeholders to Promote Code Compliance (this includes adversaries)
- Developing a Methodology for Establishing a Code Compliance Utility Program in a Non-EEPS State Using Peak Demand Reduction

Benchmarking

- Establishing the Need to Measure Energy Use in Buildings
- Implementing Benchmarking Policies, where adopted

Approach: Distinctive Characteristics

- Achieving Consensus Across Multiple Utilities on Development of Utility Plan

- Partnering with Organizations such as PNNL to Develop Innovative Approaches In Calculating Energy/Demand Savings from Improved Code Compliance

- Incorporating Non-Traditional Stakeholders in State Code Compliance Collaborative (Homebuilders, Energy Raters, Municipal League, Municipal Sustainability Office)

- Pursuing Non-Advocacy Roles in Adoption Processes When Necessary (Facilitation of Amendment Writing in Iowa)

Progress and Accomplishments: Discoveries

BEopt- Adoption opponents using new tools to hinder progress -- In Kentucky, the Beopt Software Program was used to claim how the 2012 IECC was not cost-effective.

Energy Raters - The inclusion of energy raters in the compliance process. This occurs much more often than believed and provides both potential problems and opportunities. A clear framework for how energy raters fit in to code compliance is needed.

Utility Reluctance in Code Compliance Programs-- Despite Obvious Incentives, utilities reluctant to move on utility plans due to significant concerns that include: unfamiliarity with methodology for determining savings and cost-effectiveness, unfamiliarity with program elements, lack of examples across country. Same problem exists for consumer/energy advocates.

Accomplishments

- **Code Adoption:** One state (Iowa) and One municipality (Columbia, Missouri) have adopted the 2012 IECC. The municipality only adopted the residential energy code but unlike other jurisdictions, did not amend it.

- **Illinois Utility Code Compliance Program:** 3 of the 5 Utilities and the Illinois State Energy Office have had their code utility plan approved by the regulatory body (the Illinois Commerce Commission) (ComEd, Ameren and DCEO). All 5 submitted similar plans. Approval is expected soon for the other two IOU's.

- **Nebraska Code Compliance Collaborative:** MEEA was one of the key players in establishing a highly effective code compliance collaborative in Nebraska. The collaborative has already engaged in legislative education, and has been the facilitating body in the ongoing development of a utility code compliance program.

- **Chicago Benchmarking Ordinance**: City of Chicago adopted a benchmarking ordinance that included multi-family high-rises (the multi-family portion is unique in the country). With the help of MEEA, Green Building Council, AIA and ASHRAE, the city has put together a comprehensive educational/implementation plan.

Annual Energy Savings from Adoption (Billion Btus)

	Current Total	Expected 2015 Total
Illinois	**1340**	**1340**
Iowa	**515**	**515**
Columbia MO	**80**	**80**
Minnesota	**----**	**1290**
Michigan	**-----**	**1130**
Nebraska	**-----**	**315**
Current Total Savings	**1935**	-----
Expected Total (2015)	-----	**4670** (equivalent to annual energy use of 50,000 households)
Regional Potential Total (includes all 13 states)	**10, 165** (Assumes 100% compliance)	

Increased Annual Funding for Compliance

Illinois	$3.6 Million
Expected Future Savings	
Michigan	$2.7 Million
Nebraska	$0.5 Million
Minnesota	$2.1 Million
Kentucky	$1.3 Million
Ohio	$1.5 Million
Total Funding	**$11.7 Million**

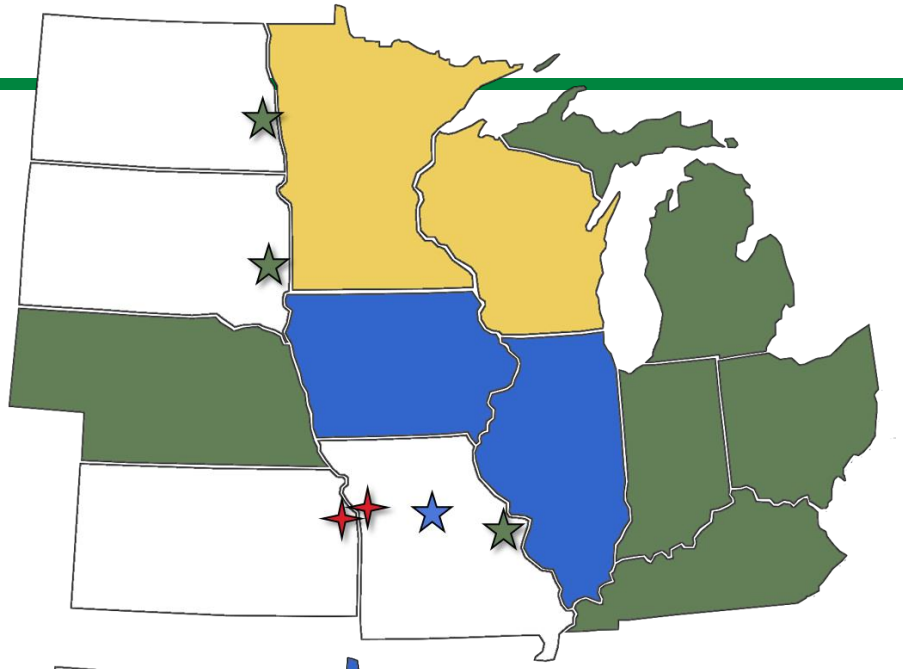
Current total refers to states that have already adopted.

Expected Total refers to states that are planned for 2014/2015.

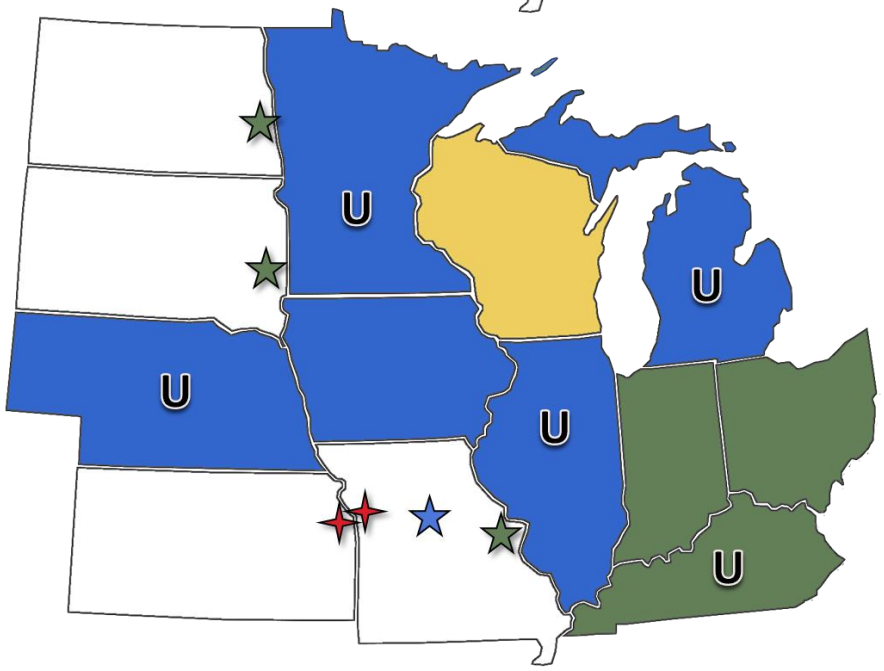
Regional Total: Refers to the energy savings if all the states in the region adopted the 2012.

Residential Energy Code

Adoption/Compliance



Current



Expected By 2015

Code Level / Equivalence

- No Mandatory Statewide Code
- 2006 IECC
- 2009 IECC
- 2012 IECC
- 2009 Adopted by Major Municipality
- Enhanced 2009 Adopted by Major Municipality
- 2012 Adopted by Major Municipality
- U — Utility Compliance Enhancement Program in place

Project Integration/ Collaboration

- With the establishment of the model codes collaborative, MEEA has helped bring together diverse stakeholders to solve the code compliance issue -- Utilities, Code Officials, League of Municipalities, City Officials, Energy Raters, Home Builders

- On the development of the code compliance utility plan, MEEA brought together all the Investor Owned Utilities, the State Energy Office, and other key stakeholders, including the Attorney General, Consumer Advocate and Environmental Organizations

- MEEA facilitates the forming of coalitions during administrative/legislative adoption process. Work in Michigan, for example, included Dow Chemical, Michigan Environmental Council, and Sierra Club.

Partners and Communication

Partners

As an example, during the development of the Peak Demand Reduction Utility Plan in Nebraska, MEEA has collaborated with PNNL to develop an innovative methodology for establishing the savings.

Communications to All Partners/Collaborators

- Bi-Weekly Updates
- Quarterly Teleconferences
- Annual Regional Codes Conference
- Quarterly Newsletter to Full MEEA Audience
- Regular Use of Monthly Webinar
- ACEEE Summer Study
- IEPEC Annual Conference

Next Steps and Future Plans

- Expand our technical capacity in energy modeling to use non-traditional tools to help us overcome problematic analyses
- Research the construction of new homes where HERS raters were used. How do rated homes compare with code homes? Establish closer connections to the rater community
- Research how to use raters to supplement traditional code enforcers
- Assist with Implementation of Code Compliance Utility Plan in Illinois
- Use Illinois model, to establish Utility Claimed Savings Plans in additional states such as Michigan, Minnesota, Indiana and Ohio
- Use Nebraska model to establish utility plans in Non-EEPS states such as Kentucky around the peak demand reduction approach

Project Budget

Project Budget: $655K from BTO through 2014, Add'l $75K for CBI
Variances: None, cost overruns for benchmarking activities moved to non-DOE funding sources
Cost to Date: $380K for Codes, $25K for CBI
Additional Funding: Energy Foundation $450K from 2010 through 2014
General MEEA Policy Funds = $100K+ for benchmarking
IL Dept. of Commerce & Economic Opportunity = $155K for CANDI compliance program

Budget History

FY2012 – FY2013 (past)		FY2014 (current)		FY2015 – Insert End Date (planned)	
DOE	Cost-share	DOE	Cost-share	DOE	Cost-share
$405,000	$950,000	$325,000	$155,000		

Project Plan and Schedule

- Task 1 – Coordination & Outreach with National Collaborative
- Task 2 – Adoption Technical Assistance
- Task 3 – Compliance Technical Assistance
- Task 4 – Commercial & Residential Tool Deployment
- All tasks ongoing
- No missed milestones or amended plans