

# Utility Partnerships Related to Building Code Compliance

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April 2, 2012

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# Agenda

- **Purpose for Utility / Code Compliance Partnerships**
- **Framework**
- **State Work**
  - Minnesota
  - Illinois
  - Iowa
  - Ohio
- **Resources**

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# Purpose of Code Utility Partnerships

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# Reasons For Code Compliance Partnerships

- **Improve Overall Statewide Compliance with Energy Code**
- **Meet the ARRA Requirement of 90% Compliance by 2017**
- **Assist Utilities in Meeting Energy Efficiency Portfolio Standard Requirements**
- **Code Adoption Programs Less Relevant in Midwest than in Other Regions**

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# Emphasis on Code Compliance

- In Midwest, States Adopt Model Codes (IECC and ASHRAE 90.1). No State Builds an Energy Code from Scratch.
- Stretch Codes can Occur only in Selected Municipalities and Must Be Evaluated on an Individual Basis

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# Rationale For Collaboration

- Code compliance levels remain relatively low due to the fact that:
  - Main responsibility of Code Officials has been / is life-safety issues
  - Increasing complexity of energy codes
  - Lack of resources/training to implement the above
- Increasing requirements for Energy Efficiency Portfolio Standards (EEPS) require finding non-traditional ways to generate savings from EE programs.
- Utilities and other entities have experience with design and construction of energy efficient buildings.
- Utilities can provide expertise/resources/assistance to aid building practitioners improve compliance with the energy code.

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# Code Compliance Rates

- **Maine Residential– 16% (Maine PUC; 2007)**
- **Illinois Residential -- 79% (with caveats) (Using PNNL Protocol: 2011)**
- **Iowa Residential -- 70.1% (PNNL Pilot Study: 2011)**
- **Indiana/Ohio/Michigan/Kentucky all just adopted the 2009 IECC in the past year.**

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# Potential Savings

	Estimated Annual Savings by 2015 (trillion Btus)		Estimated Annual Savings by 2020 (trillion Btus)	
	Residential	Commercial	Residential	Commercial
Illinois	6.0	3.6	11.8	7.3
Indiana	5.0	3.8	9.9	7.8
Iowa	1.1	0.8	2.2	1.6
Michigan	2.5	4.0	4.8	8.3
Minnesota	3.4	4.1	6.7	8.5
Ohio	3.4	1.9	6.8	3.9
Wisconsin	2.2	1.5	4.3	3.1
Subtotal by Class	23.6	19.7	46.5	40.5
<b>Total Savings (All)</b>	<b>43.3 trillion Btus</b>		<b>86.5 trillion Btus</b>	

For comparison: The savings projected in 2015 is equivalent to the annual energy of 350,000 Midwest Households. For 2020, the annual savings are equivalent to the annual energy use of 700,000 households.

See data from 2005 Residential Energy Consumption Survey (RECS):

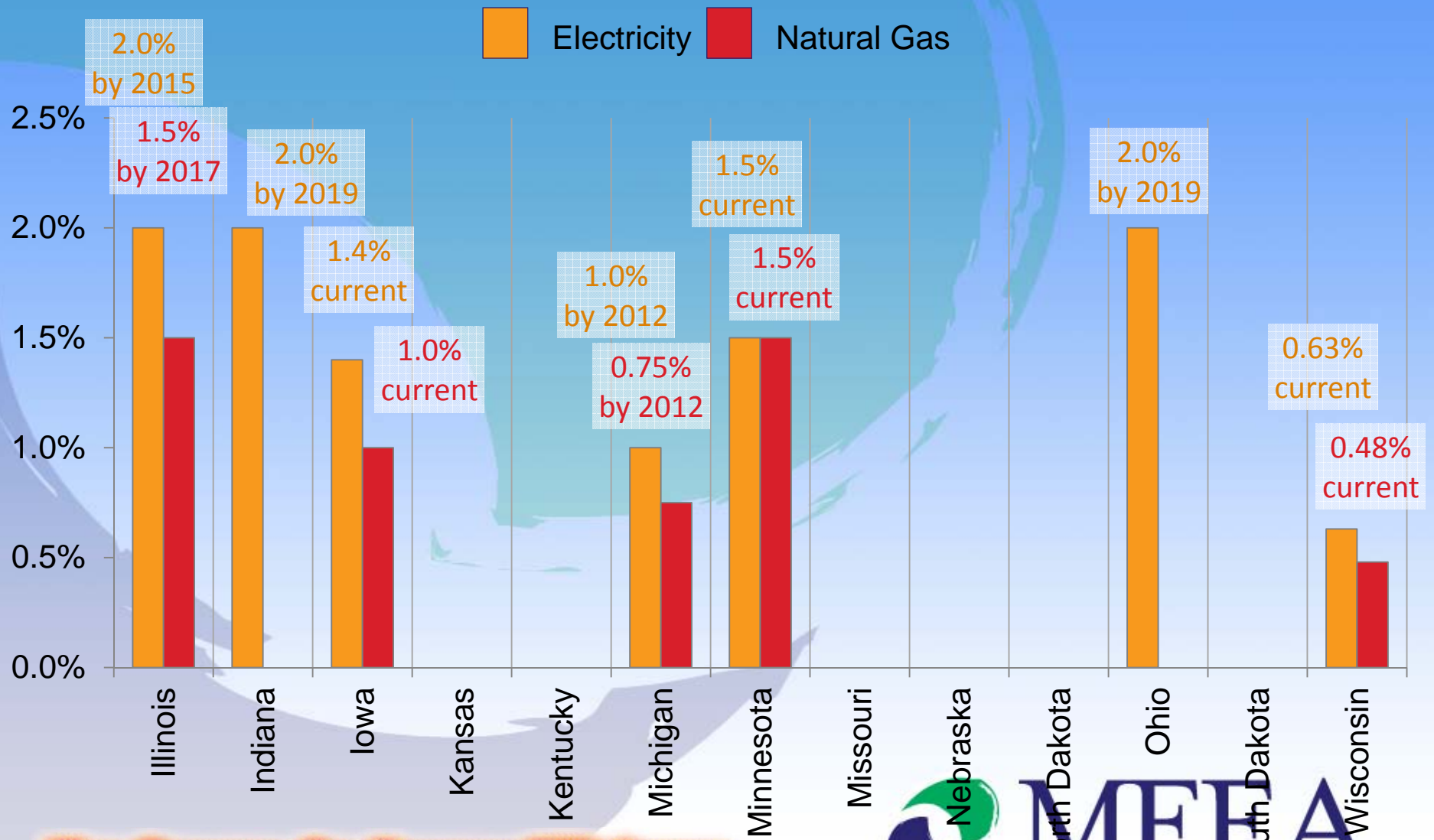
[http://www.eia.gov/emeu/recs/recs2005/c&e/detailed\\_tables2005c&e.html](http://www.eia.gov/emeu/recs/recs2005/c&e/detailed_tables2005c&e.html)

Code calculator to figure out savings can be found at the Building Codes Assistance Project OCEAN website:

[http://bcap-ocean.org/sites/default/files/Code%20Cost%20Calculator%20Midwest\\_0.pdf](http://bcap-ocean.org/sites/default/files/Code%20Cost%20Calculator%20Midwest_0.pdf). Savings are based on adoption of codes starting in January 2011.



# Energy Efficiency Policies in the Midwest



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# Collaboration Reluctance

**Utilities May Hesitate to Support Improving the Stringency of Energy Codes because:**

- **It May Reduce the Overall Available Efficiency Potential a Utility Can Access to Comply with its Efficiency Goals by Potentially Reducing the Amount of Energy Savings Utilities can Claim**
- **Uncertainty as to Whether Utilities can Gain EE Claimed Savings Credit from Code Programs**
- **Codes Police**

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# Program Framework

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# How Do Code Compliance Programs Differ From Other EE Programs or Incentives?

- Codes are Adopted and Generally Enforced By Governmental Agencies
- Multiple Organizations (Stakeholders) are Interested and Willing to Participate
- Codes Affect all New Buildings/Major Renovations
- “Customers” Cannot Choose to Participate
- Utility Actions Affect Adoption and Compliance but Not Consumer Behavior

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# Types of Energy Savings

- **Residential Code Compliance Work Mostly Saves on HVAC Operation (Natural Gas in Cold Climates)**
- **Commercial Code Compliance Gains Savings for Both: Electricity through Commercial Lighting and Natural Gas through Envelope/HVAC Improvements**

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# Steps in Establishing a Code Compliance EE Program

- **Confirm State Statutory** and Regulatory Requirements
- **Understand** All the Various Stakeholders Involved
- **Work Out Appropriate Activities** (Actions that Will Result in Measurable Energy Savings)
- **Develop Methodology** for Measuring Energy Savings (Pay Attention to Difference Between Natural Gas and Electricity as They May Affect Different Groups)
- **Determine Attribution Rates** (not all Energy Savings Due to Increased Compliance will Come Directly From Utility Actions)
- **Allocation** (Multiple Utilities Within State; Different Utilities Cover Different Fuels)

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# Compliance Enhancement

## California Example

CA Program Implementation Plan (PIP)

Statewide Codes and Standards; 2009-2011

Compliance Enhancement Subprogram:

### Near Term 2009-2011

- Research of High Priority Solutions (also in Mid & Long Term Plans)
- Increase Training and Support for Local Code Officials
- Investigate Regulatory Tools Such as Licensing and Registration Enforcement
- Evaluate Proposed Changes to Code and Compliance Approaches
- Work with Local Governments to Improve Code Compliance, Adopt Above Code Ordinances, Provide Training/Education

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# Compliance Enhancement

## California Model

### Mid-Term 2012-2015

- Pursue involvement of HERS Raters
- Work with Trade Associations to Improve Self-Policing
- Streamlining Permit Process

### Long Term 2016-2020

- Investigate Sticks and Carrots with Monetary Incentives/Penalties
- Investigate Codes that Regulate the Operations of Buildings

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# Additional Types of Compliance Enhancement

- Funding/Subsidizing Performance Testing (Blower Doors)
- Funding Development, Implementation and Management of Third Party Enforcement (Specialized Inspectors/HERS Raters)

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# Methodology for Measuring Energy Savings

See Minnesota Description Below

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# Attribution

- **Prove it and Claim It: California**
- **Support Achievement of Code Savings; Get Part Credit: Arizona**
- **Project What Will Be There; Work Together to Make it Happen: Northwest**
- **Other: Combination of Different Approaches**

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# Allocation

- Multiple Utilities within State
- Utilities Covering Differing Fuels (in some cases covering both fossil fuels and electricity).
- Work in One Region Ends Up Saving Energy in Another.

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# Washington State

- Organization Called the “Utility Codes Group” Formed by Utilities to Develop, Implement and Manage Work to Improve Compliance with Commercial Energy Code
- Training Program on Overall Code
- Funded and Developed Specialized Inspector Program
- **Energy Savings Allocated by Contribution that Utility Made to Group**

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# Who is Paving the Way in the Midwest?

Some States with Established or Developing Partnerships:

- Minnesota
- Illinois
- Iowa
- Ohio



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# Minnesota

- Minnesota's Next Generation Energy Act of 2007 requires 1.5% annual energy savings
- Minnesota's Office of Energy Security contracted Minnesota Environmental Initiative to facilitate stakeholder process for non-traditional EE programs
- Created list of recommendations to the state
  - Utility Infrastructure
  - Low-Income Conservation
  - Behavioral
  - Codes and Standards

**Full Recommendations at**

**<http://www.environmental-initiative.org/projects/past-projects>**

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# MN Recommendations

- **Establish Baseline using PNNL Compliance Evaluation Protocol**
- **Develop Methodology for Converting Code Compliance Results into Energy Use**
- **Establish Utility Codes Group Based on Washington State Model**
- **Form Stakeholder Group to Work Through Attribution Issue**

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# MN Energy Impact of Code Compliance

- Quantify new and renovated buildings across the state
  - How many
  - Building type
  - Building size
- Calculate the anticipated energy use of that population of buildings
  - Code level attributes
  - Attributes found in the survey
  - Non-compliant attributes found in the survey



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# Illinois Compliance Enhancement

- Department of Commerce and Economic Opportunity has Run a Series of 40 Trainings on the 2012 IECC (for Both Residential and Commercial Buildings)
- Funded by Energy Efficiency Portfolio Standards Money

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# Iowa Compliance Enhancement

- Alliant Energy Funded Energy Efficiency Summit at 5 Locations (Mid American Funded the 6<sup>th</sup>)
- Covered Energy Star V.3, Energy Code and Building Science
- Discussed Best Practices with Respect to the 3 Items Listed Above

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# Iowa Compliance Work (cont.)

- Department of Safety Has Also Designed a Training (not utility funded, but can serve as model).
- Training Geared for Building Officials Focusing on Plan Review and Inspections.
- Utilities Have Also Designed a Rebate Program that Provides Rebates for Building to the 2012 IECC (Iowa Currently Enforcing 2009 IECC)
- Discussion on How To Incorporate HERS Raters into Compliance.

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# Ohio

- **American Electric Power and Columbia Gas have Allocated Money towards a Codes Program (as yet unspecified).**
- **Collaboration at Initial Stages Help Address Allocation Issue (as well as Fuel Use Issue)**

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# Issues to Consider

- **Programs Must Pass Regulatory Scrutiny**
  - Cost Effectiveness
  - Utility Incentives and Penalties
  - Approved Attribution Method
- **Examples to Draw From**
  - California
  - Arizona
  - Washington
  - Massachusetts

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# Take Away Issues

- Stakeholders May/May Not Recognize Role for EE Codes Programs
- Pay Attention to Raising Baseline (2012 IECC?)
- Defining Activities (Underway in MA and CA)
- Attribution (Consideration of Existing Models; Look at New Models Especially from CA)
- Evaluation
- Regulatory Approval – Requires Clear Justification

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# Needed Work

- Clarify and Expand Types of Utility Activities (Especially Beyond Training)
- Establish Measurement and Attribution Protocols
- Develop Strategies for Allocation
- Clarify/Address Statutory and Regulatory Hurdles
- Outreach to Diverse Stakeholders to Ensure Support

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# Resources

**Codes Compliance Program Case Studies  
References are Available for Further Study:**

**California Public Utilities Commission (CPUC) Energy  
Efficiency Plan**

[www.cpuc.ca.gov/PUC/energy/Energy+Efficiency](http://www.cpuc.ca.gov/PUC/energy/Energy+Efficiency)

**Minnesota Environmental Initiative (MEI) final report:**

[www.environmental-initiative.org/images/files/  
1\\_5EESolutionsFinalReportwithoutAppendices.pdf](http://www.environmental-initiative.org/images/files/1_5EESolutionsFinalReportwithoutAppendices.pdf)

**Massachusetts**

[www.masssave.com](http://www.masssave.com)

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