



MEEA
Midwest Energy Efficiency Alliance

THE BIG PICTURE: ENERGY EFFICIENCY IN THE MIDWEST

Nikhil Vijaykar

Green Economics: Agreeing on Efficiency

USDA Rural Development

March 17, 2016

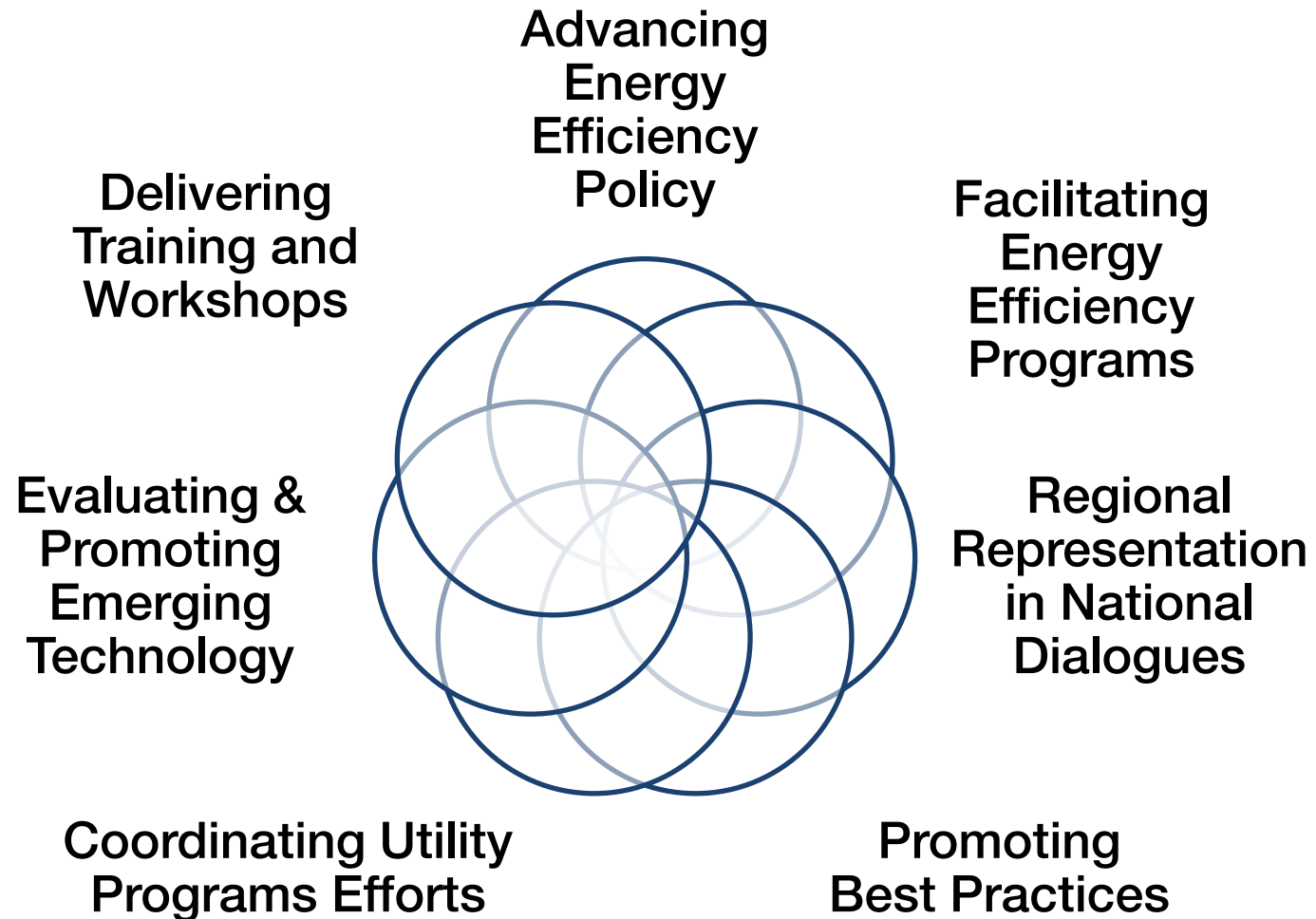
The Source on Energy Efficiency

Midwest Energy Efficiency Alliance (MEEA)

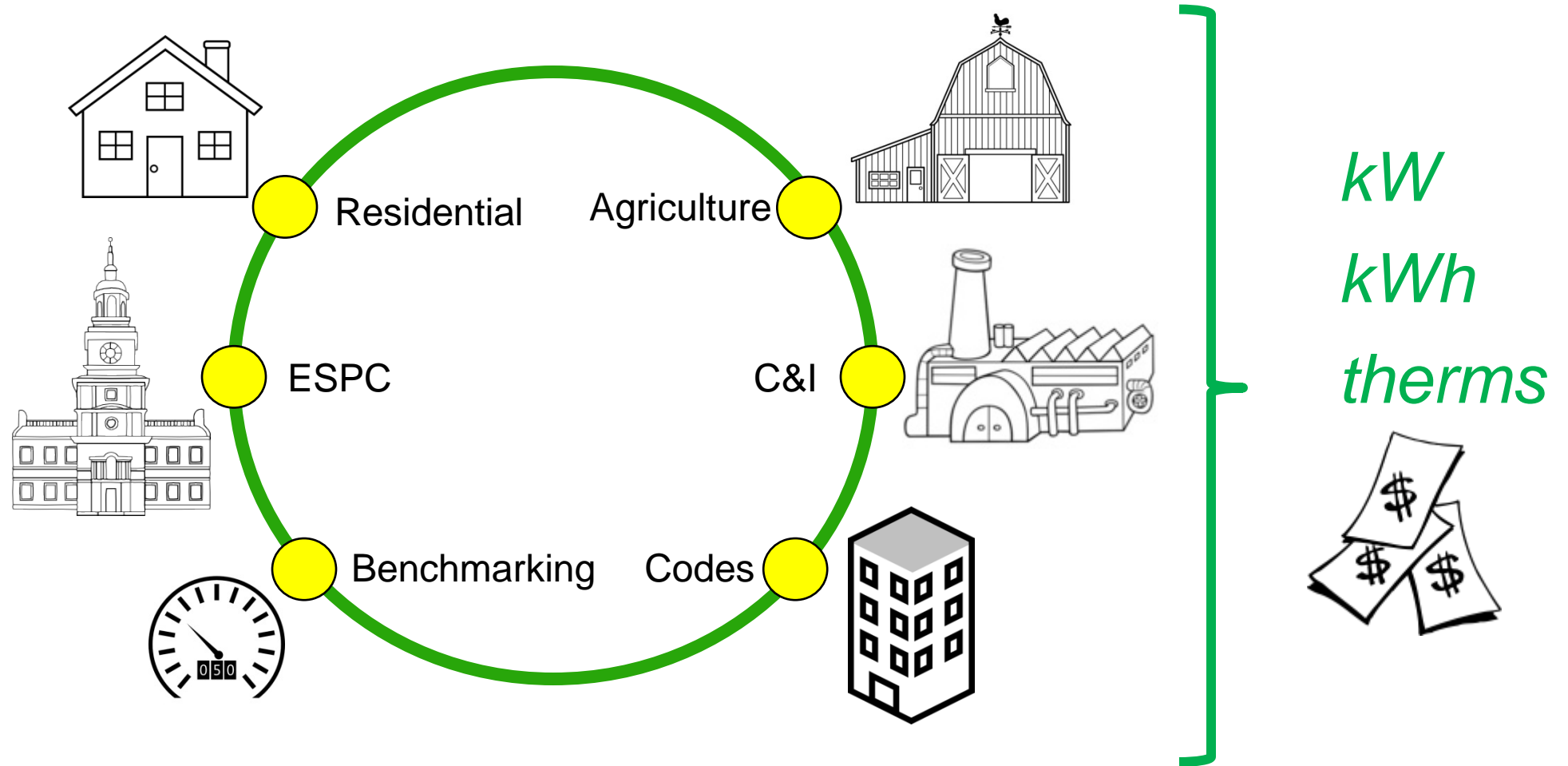
- ❖ **MEEA is a nonprofit membership organization with 150+ members, including:**
 - Electric and Gas Utilities
 - State and local governments
 - Manufacturers and retailers
 - Academic and research institutions
 - Energy service companies and contractors
- ❖ **Since 2000, MEEA has been the leading source for raising awareness and advancing sound energy efficiency policies and programs in the Midwest**
- ❖ **MEEA balances the diverse interests of its members and network** across the public and private sectors, creating a common ground to affect positive change for energy efficiency in the Midwest.



MEEA's Role as a Resource



Several Pathways to Energy Efficiency



Today's Agenda

- What policies drive energy efficiency investments by utilities in the Midwest?
- How can **cooperatives** bring the benefits of energy efficiency to their members?
- What is the value of **industrial** programs?
- What actions spur energy efficiency in **buildings**?
- How is energy efficiency **financed**?
- How can North Dakota take advantage of **performance contracting**?

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- What policies drive energy efficiency investments by utilities in the Midwest?

Energy Efficiency Investments by Regulated Utilities

- Driven by:
 - Statewide targets (savings or investment)
 - Complementary policies
 - Integrated Resource Planning Requirements



Midwest Efficiency Targets and Funding Levels

2010 \$1.01 billion
2015 \$1.78 billion

**North Dakota
South Dakota
Nebraska
Kansas**
Voluntary energy efficiency only

Minnesota
1.5% elec by 2010
1.0% gas by 2010
(gas goal reduced by commission)

Iowa
Set on a utility basis
1.4% elec current plans
1.0% gas current plans

Wisconsin
No specific savings targets
0.6% elec current est.
0.5% gas current est.
1.2% annual operating revenue spending target

Michigan
1% elec by 2012
0.75% gas by 2012
Legislative rollback proposed

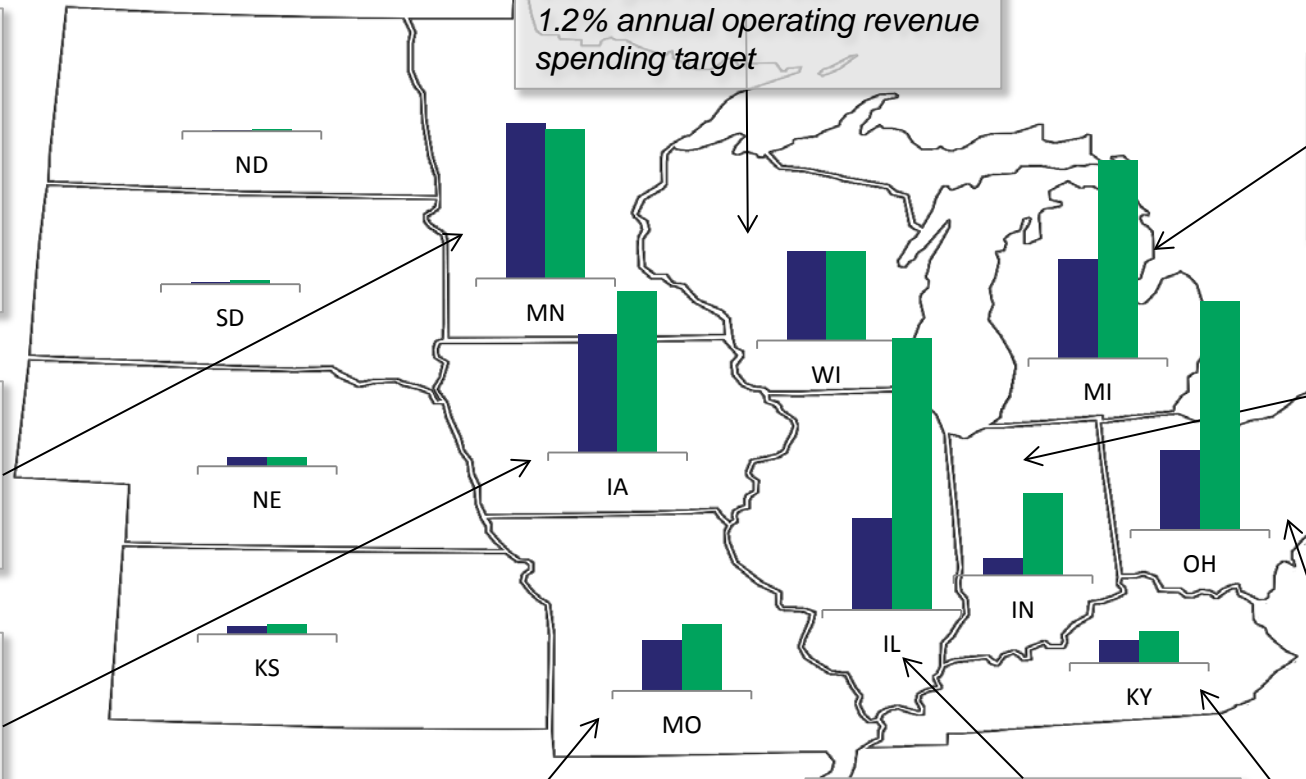
Indiana
Overturned 2014
Future legislation & funding unclear

Ohio
1% elec by 2014
Two-year "freeze" after 2014.
Future legislation & funding unclear.

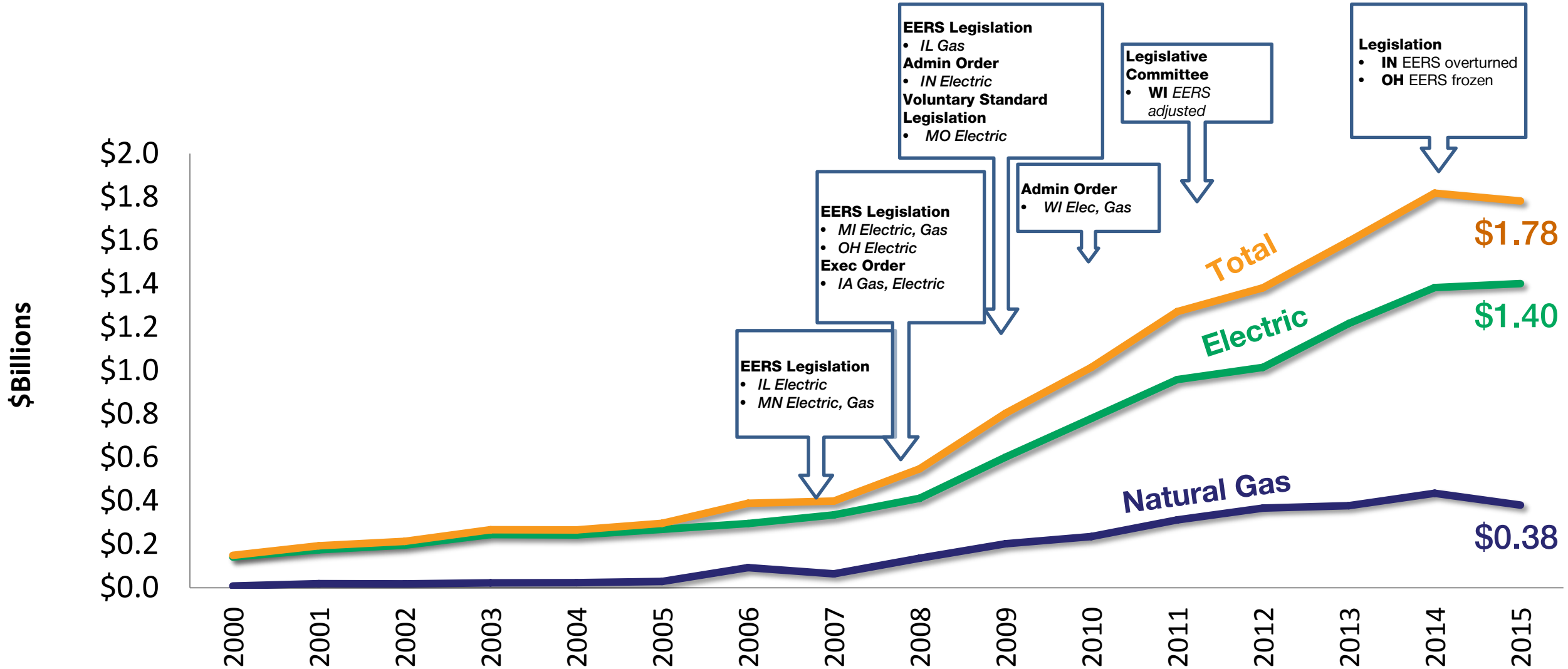
Missouri
IRP process; Voluntary electric

Illinois
2% elec by 2015
1.5% gas by 2019

Kentucky
Voluntary electric and gas



Estimated Annual Utility Investment in Energy Efficiency in the Midwest



Complementary Policies Supporting Utility Investment in Efficiency



Cost Recovery

Incentives

Lost Revenue Recovery

Complementary Policies Supporting Utility Investment in Efficiency

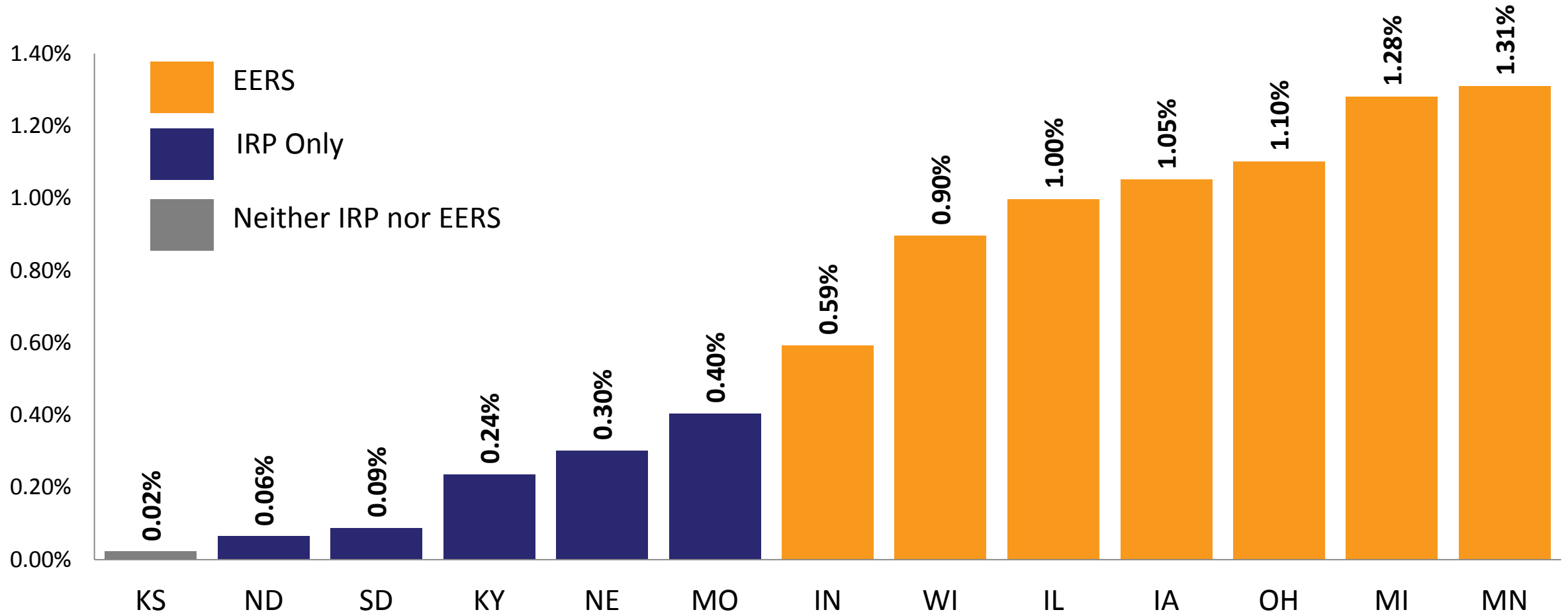
	Mandate	Cost Recovery	Lost Revenues	Financial Incentives
Illinois	Yes (Electric and Gas)	Yes	No recovery in legislation, decoupling approved on case by case basis	No
Iowa	Yes (Electric and Gas)	Yes	Revenue recovery allowed on case by case basis for gas	No
Kentucky	No	Yes	Lost revenue recovery allowed by legislation on approved programs	Yes
Michigan	Yes (Electric and Gas)	Yes	Decoupling; revenue recovery allowed on case by case basis	Yes
Minnesota	Yes (Electric and Gas)	Yes	Decoupling; recovery pilots approved on a case by case basis	Yes
Missouri	No	Yes	Lost revenue recovery allowed by legislation, decoupling approved case by case	Case by case
Ohio	Yes (Electric)	Yes	Lost revenue recovery and decoupling; approved on case by case basis	Case by case
Wisconsin	Yes (Electric and Gas)	Yes	Approved on a case by case basis	Case by case

Integrated Resource Planning

- IRP is a planning framework used to evaluate supply-side and demand-side resources
- EERS produce more cost-effective savings than an IRP by providing a stable funding base for EE programs. Fuels long term energy savings within a state.
- The good news – they can work together to achieve significant savings in a cost-effective, thoughtful way.

Energy Efficiency in Midwest States

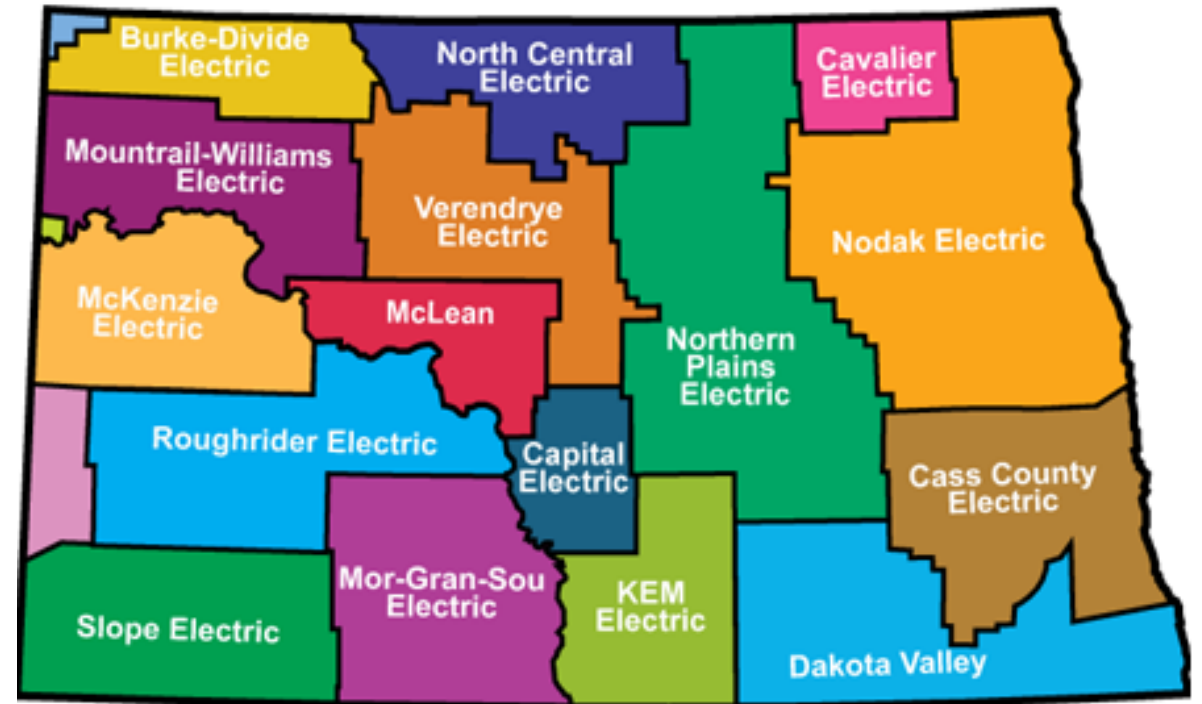
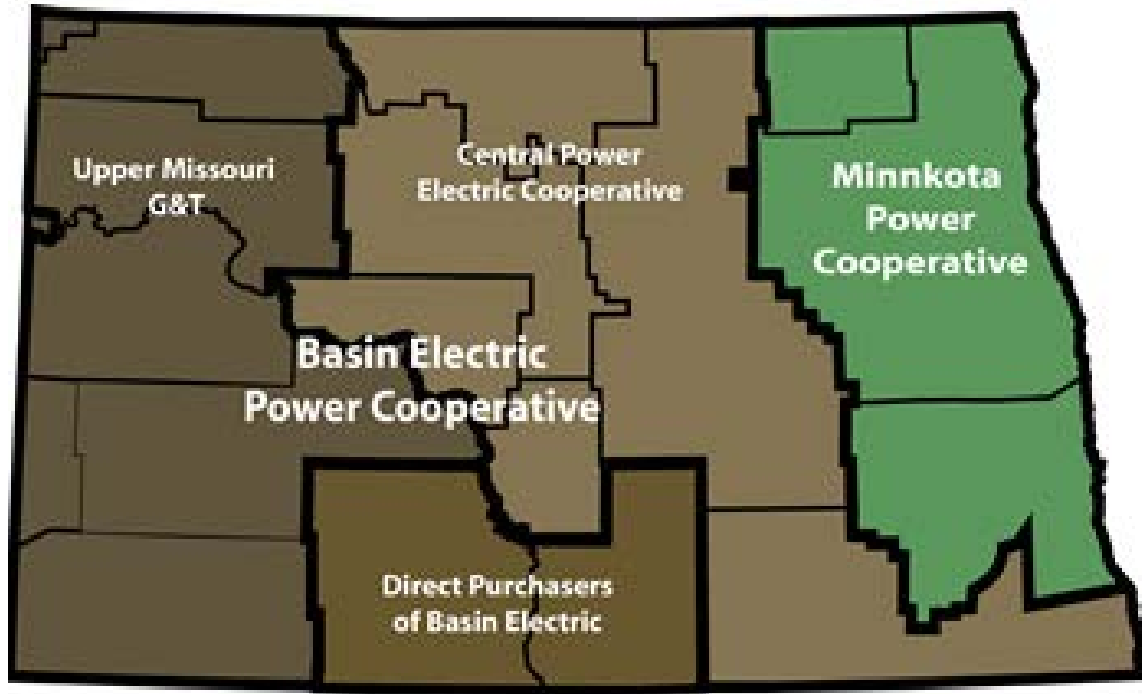
Saved electricity as percent of total retail electricity sales, 2014



Sources: MEEA, 2015; EIA, 2015

- How can cooperatives bring the benefits of energy efficiency to their members?

North Dakota Rural Electric Cooperatives



Maps Courtesy of North Dakota Association of Rural Electric Cooperatives

Rural Cooperatives and Energy Efficiency

- Drivers of efficiency investment:
 - Accountability to members
 - Reduce energy purchases by reducing peak demand
 - In some cases, regulatory mandate
- Unique challenges
 - Disperse customer base, low density
 - Low electric usage
 - Market disinterest
 - Funding (we'll return to this later in the presentation)
- MEEA Resource: Toolkit for Rural Energy Efficiency
 - Best practices guide for cooperatives throughout the Midwest

Rural Cooperatives and Energy Efficiency

- Case Study: Michigan Electric Cooperative Association Energy Optimization (EO) Collaborative Group
- Challenge: large service territories and relatively low electric usage of members
- EO collaborative formed to address compliance obligations collectively. includes eight co-op members and four municipalities
- Files collective Energy Optimization plans (as opposed to individual plans)
- Manages single RFP, selection and contracting processes for implementation and evaluation contractors
- Achieves economies of scale by pooling talent, sharing costs

- What is the value of industrial programs?

Utility Program Sectors

Residential	Commercial
Agricultural	Industrial

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Residential	Commercial
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Industrial EE is Important in the Midwest

38%

of electricity in the Midwest states is consumed by the Industrial sector (*EIA 2014*)

40%

of Industrial EE potential is found in Midwest (*McKinsey 2009*)

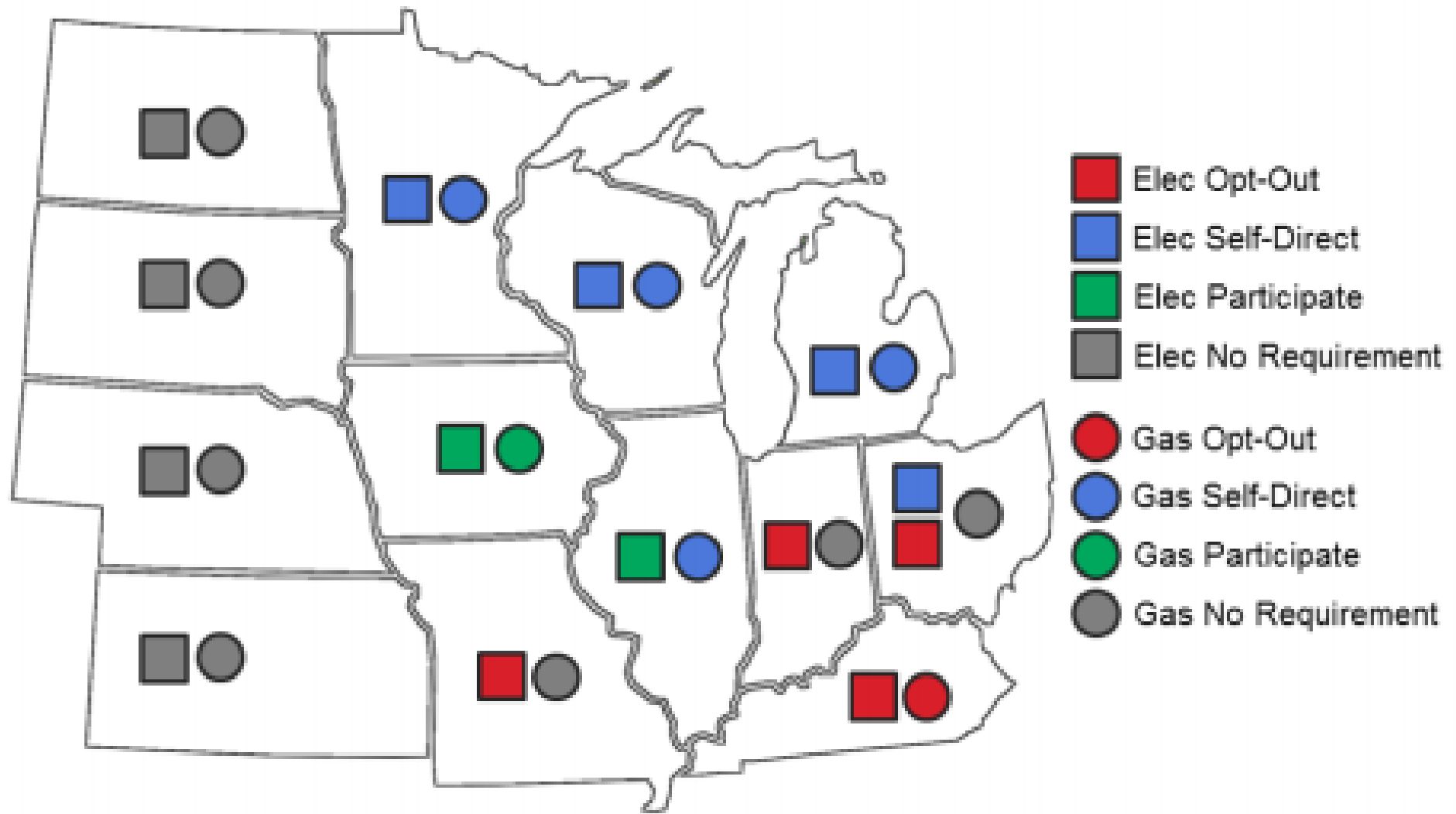
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Midwest states are in Top 10 consumers of total energy in the industrial sector, and 4 more are in the Top 25 (*EIA 2014*)

State	Program Administrator	Energy Type	\$ in benefits per \$1 cost*
WI	Focus on Energy	Electric & Gas	\$3.80
IA	Interstate Power & Light	Electric	\$3.10
		Gas	\$3.41
MN	Xcel Energy	Electric	\$2.83
		Gas	\$2.97
MI	DTE Energy	Electric	\$1.97
		Gas	\$2.43
MI	Consumers Energy	Electric	\$1.66
		Gas	\$1.66
OH	Dayton Power & Light	Electric	\$1.74
SD	Otter Tail Power	Electric	\$3.97

Return on Investment of Commercial & Industrial Energy Efficiency
C&I Portfolios of Selected Midwest Program Administrators, 2013

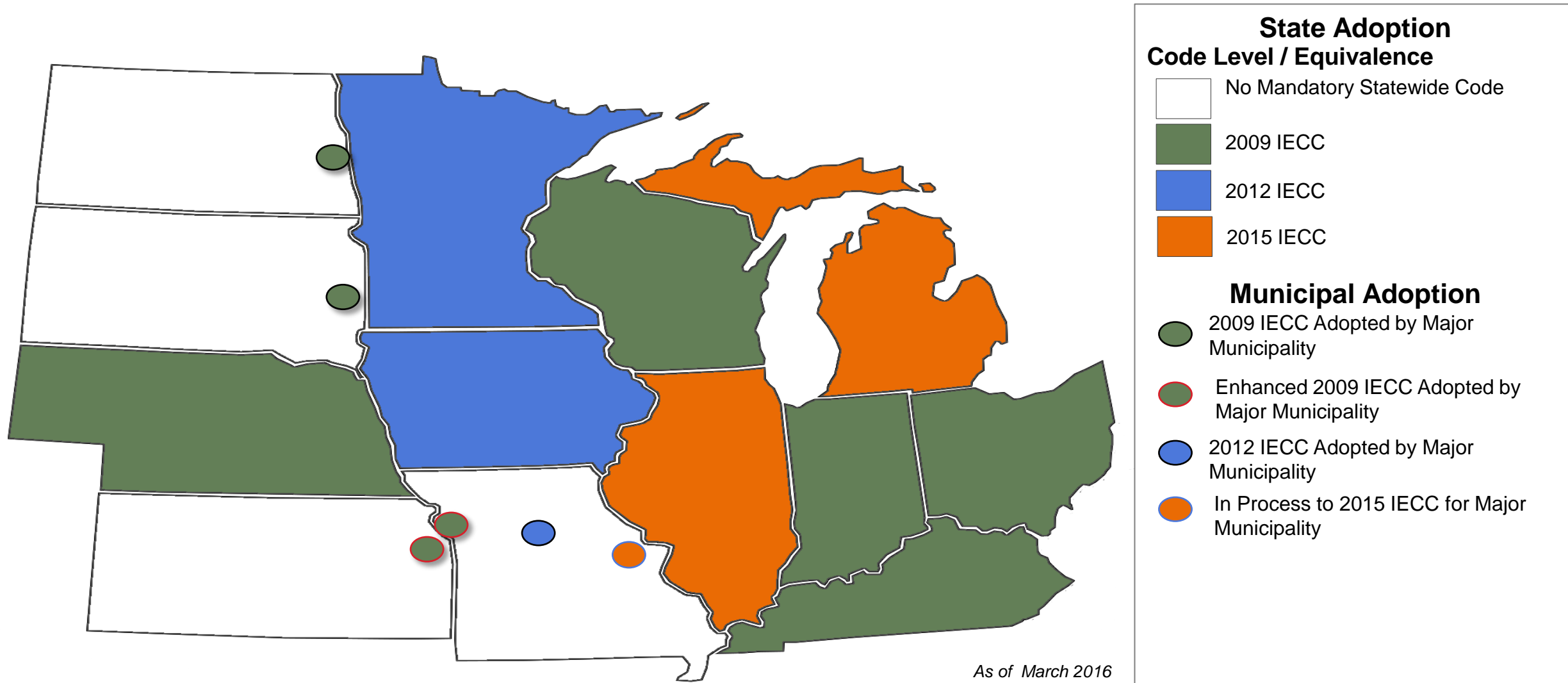
**Benefits and costs calculated via the Total Resource Cost Test (TRC), except MN which is calculated via the Societal Cost Test (SCT).*



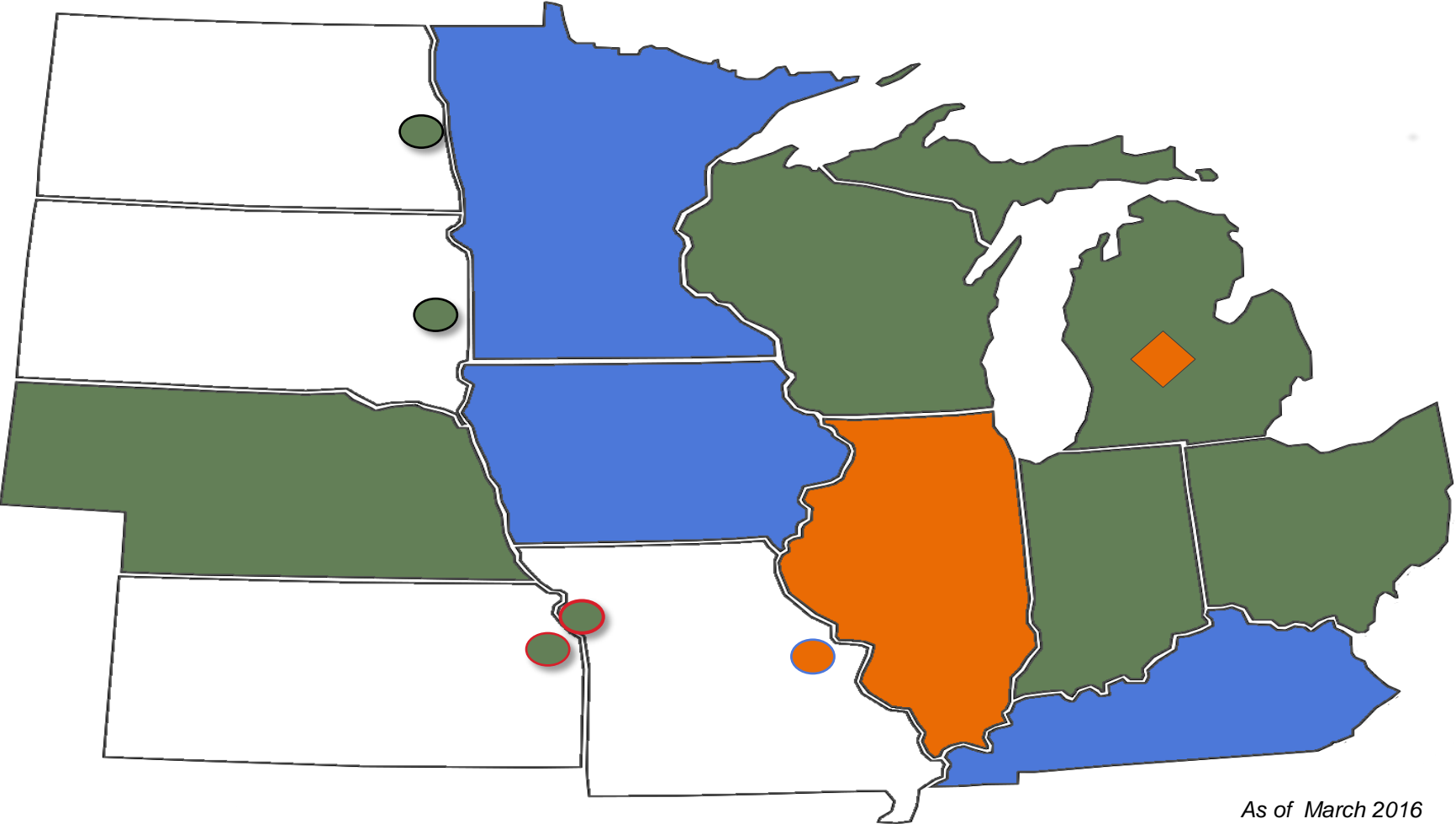
Industrial Energy Efficiency Self-Direct and Opt-Out Policies
Midwest Energy Efficiency Alliance, 2015

- What actions spur energy efficiency in buildings?

Residential Building Energy Code Adoption in the Midwest



Commercial Building Energy Code Adoption in the Midwest



As of March 2016

State Adoption

Code Level / Equivalence

- No Mandatory Statewide Code
- 2009 IECC/90.1-2007
- 2012 IECC/90.1-2010
- 2015 IECC/90.1-2013
- In Process to 2015 IECC/90.1-2013

Municipal Adoption

- 2009 IECC Adopted by Major Municipality
- Enhanced 2009 IECC Adopted by Major Municipality
- 2012 IECC Adopted by Major Municipality
- In Process to 2015 IECC for Major Municipality

Building Energy Benchmarking

General Definition:

- Track energy consumed by an existing building over time
- Compare results to similar buildings or an applicable standard



Image Courtesy of Portland State University

Benefits of Measuring Energy Use

Owners

- 1 – Create More Accurate Budgets.
- 2 - Verify Savings completed by ESCO.
- 3 - Earn Recognition (ENERGY STAR, Green Globes, LEED).

Government

- 1 - Progress Towards Sustainability / GHG Goals.
- 2 - Focus Assistance to Higher Energy Users.

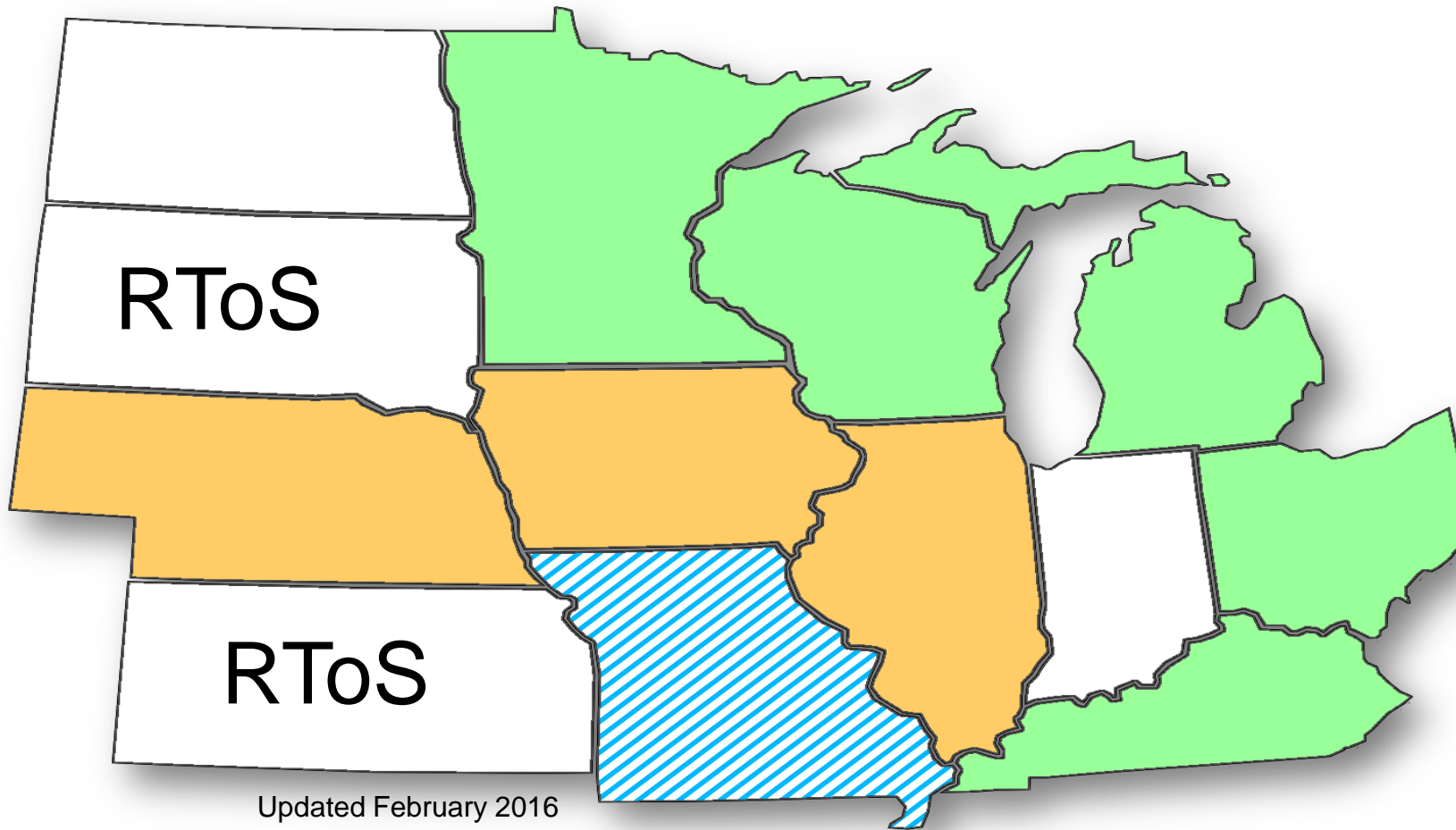
Market

- 1 - Owner and Tenant Joint Engagement.
- 2 - Transparency in Real Estate Transactions.
- 3 - Does not Supersede Typical Real Estate Requests in Transactions.







Public-Private Partnership to Reduce GHGe

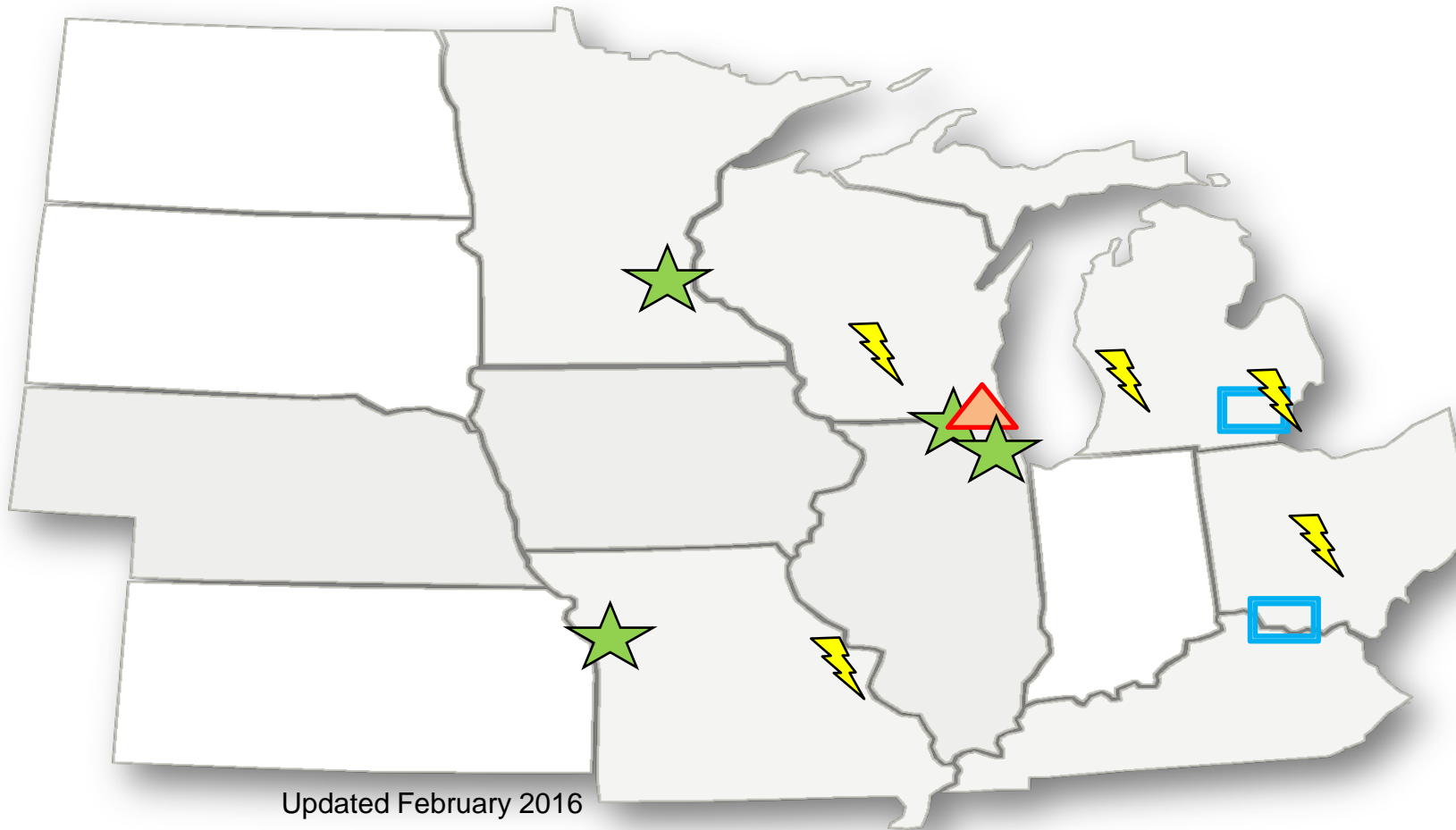
Midwest State Gov't Energy Data Collection / Use




State Owned/Operated Building Data Collection and Implementation

-  State Pilot Underway
 -  State Pilot Complete
 -  State Owned Considering
 -  State Owned Enacted
- RToS Voluntary Residential Time of Sale Disclosure

Midwest Municipal Energy Data and Benchmarking Legislation Status



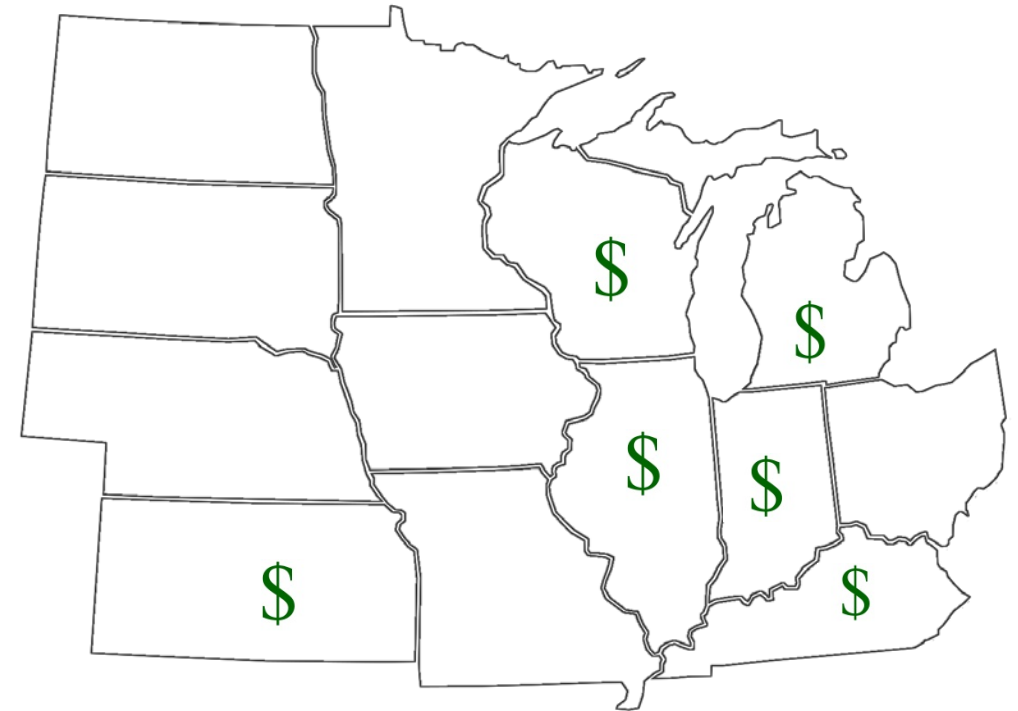
Municipal + Private Owned Benchmarking Ordinance

-  Voluntary Program Underway in Municipality
Columbus, OH 2014+
Grand Rapids 2014+
Detroit 2014+
St. Louis 2015+
Madison 2016
-  Considering Idea by Municipality
-  Considering Legislation by Municipality
-  Adopted by Local Gov't
Minneapolis 2013
Chicago 2013
Cook County, IL 2014
Kansas City 2015

- How is energy efficiency financed?

On-Bill Financing in the Midwest

- Allows utility customers to invest in energy efficiency improvements and repay the funds through additional charges on their utility bills
 - Oftentimes is “bill-neutral”
- Achieves higher savings by assisting property owners with upfront financing
- Leverages the unique relationship between customers and utilities to provide convenient access to funding for energy efficiency investments



Kentucky Case Study: On-Bill Financing



- No legislation in place
- Four year old Co-op on-bill financing program in Eastern Kentucky, supported by PSC Order
- Big driver of on-bill financing is the Mountain Association of Community and Economic Development (MACED)
 - Worked with Co-ops to develop the on-bill program **How\$martKY**
- Loans cannot be issued for measures that require customers to finance the measure for longer than its lifetime
- Loans must be cash flow positive
- 90% rule: Monthly payment must be 90% or less than projected savings

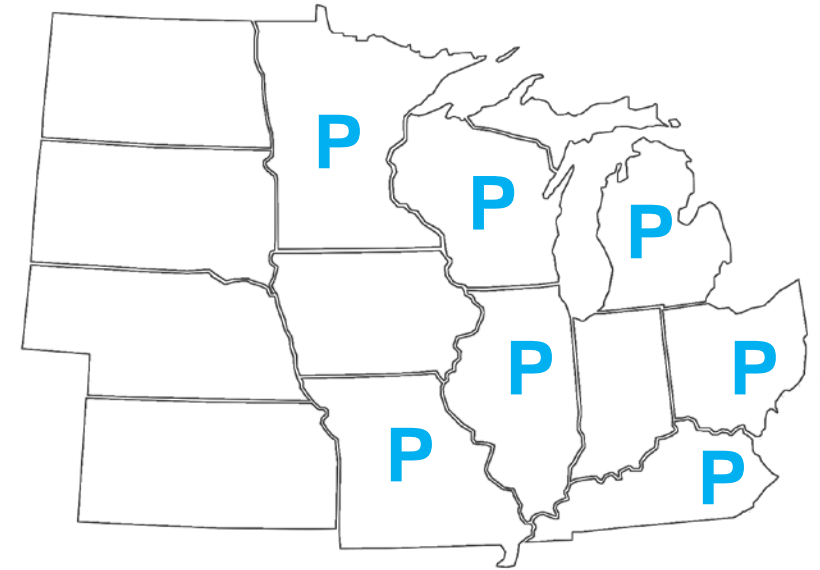
How\$martKY Metrics (through 2015)



Retrofits	260
Energy Assessments	443
Average Projected Savings	5,122 kWh/month (\$48.57 based on KY energy costs)
Average Charge	\$35.90
Average Job Cost	\$7,939.00
Average Financed Amount:	\$5,198.00
Percentage of jobs for low to moderate income clients	59%

Property Assessed Clean Energy (PACE)

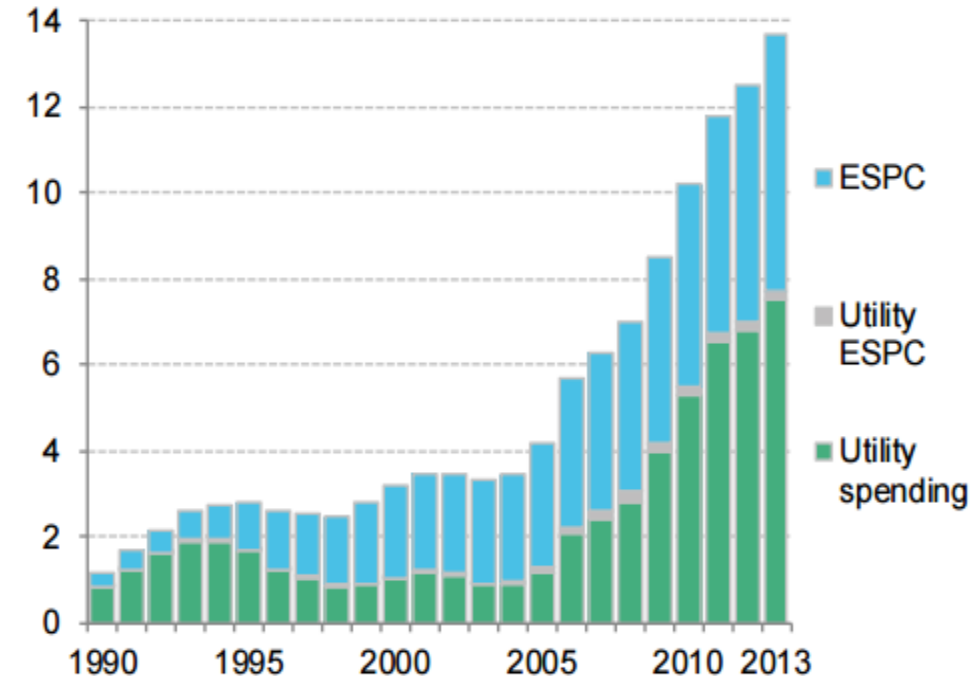
- Similar to the concept of special municipal tax districts
- PACE districts established by local governments – issue loans to residential and commercial property owners to allow voluntary energy efficiency improvements
- Loan payments take the form of an assessment added to the property tax, typically with 20-year repayment
- Requires enabling state legislation



- How can North Dakota take advantage of performance contracting?

Private Efficiency Industry

- Energy service companies (“ESCO”s) typically provide energy savings performance contracts (ESPC), contracts for guaranteed energy savings through energy efficiency and facility improvements.
- Typically target the “MUSH” market: municipalities, universities and colleges, K-12 schools and hospitals (69% of total revenues).



Source: Bloomberg New Energy Finance, 2015 Sustainable Energy in America Factbook.

Energy Savings Performance Contracting in North Dakota

- North Dakota law (NDCC § 48-05-09 thru 48-05-13) allow government entities to enter into “guaranteed energy savings contracts” with qualified providers
- Allows procurement of energy savings and facility improvements with no up-front capital costs or special appropriations.
- Public facility modernization without new taxes
- Spending on energy conservation measures must be less than amount to be saved in energy and operation costs over 15 years
- North Dakota has completed over \$21M in performance contracting, creating 235 job years and 180,000 MMBtus in annual energy savings. (Energy Services Coalition)



Other Energy Efficiency Financing Tools

- Loan Loss Reserve Fund
- Qualified Energy Conservation Bonds
- Revolving Loan Funds
- Rural Utility Service (RUS) Rural Energy Savings Program (RESP)
- USDA EECLP Program

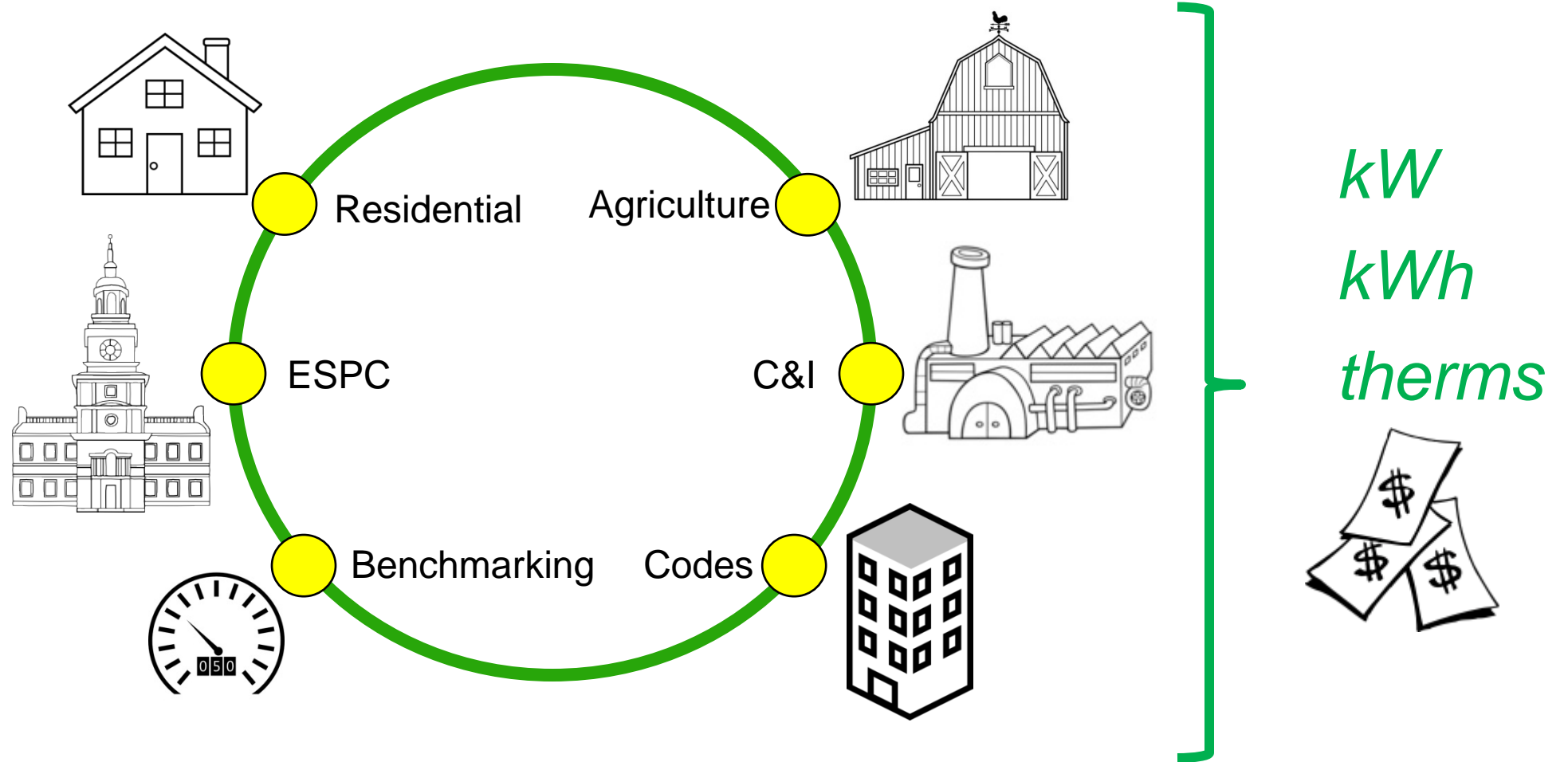
MEEA EE Advocacy Toolkit

Online resource for MEEA members and advocates in communicating the value of energy efficiency to policymakers, the public, and other stakeholders.

- State Information including: updated fact sheets for IL, MI and OH; testimony submitted in MI and OH; state contacts; legislative and regulatory links, etc.
- [Resource Guide for Policymakers](#): a comprehensive report on energy efficiency policies and programs in the Midwest.
- [EE Messaging](#): supporting energy efficiency and refuting common opposition argument
- [PPT slides](#) tracking regional investment in energy efficiency, state by state investments, state regulations, etc.
- Sample letters to the [governor](#) and [editor](#) supporting energy efficiency
- Factsheets on key topics in energy efficiency.

Toolkit available at: www.mwalliance.org/advocacy

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Questions and Contact Information

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