



Grid-Interactive Efficient Building Landscape in the Midwest

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2019 ACEEE National Conference
Energy Efficiency as a Resource



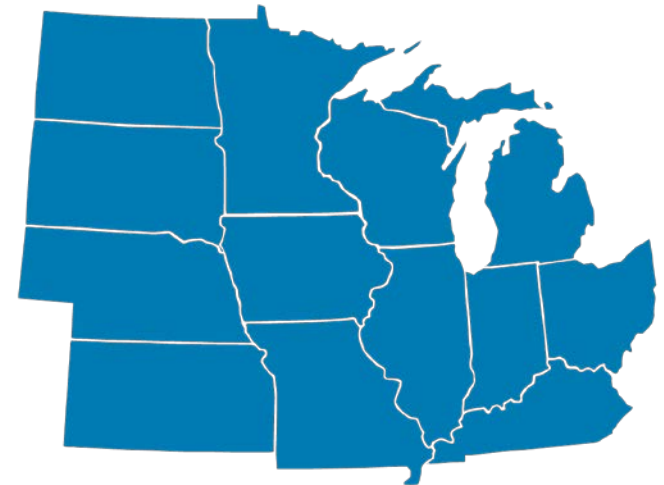
About MEEA

The Trusted Source on Energy Efficiency

We are a nonprofit membership organization with **160+ members**, including:

- Utilities
- Research institutions
- State and local governments
- Energy efficiency-related businesses

As the key resource and champion for energy efficiency in the Midwest, MEEA helps a diverse range of stakeholders understand and implement cost-effective energy efficiency strategies that provide economic and environmental benefits.



Agenda

- Definition of Grid-Interactive Efficient Buildings
- State Initiatives for Grid Modernization
- Deployed Technology
- Utility Programs and Projects
- Barriers
- Solutions

Focus of MEEA Research

- Current utility research and development related to GEB
 - *Technology development, performance testing, product demonstrations, pilots and cost analyses*
 - *Analysis by state*
- What are the leading GEB initiatives, who is involved and what is driving them in the Midwest?
- Identify technology, products and market information gaps
- Additional research and development needed to advance GEB

Key Characteristics of GEB



EFFICIENT

Persistent low energy use minimizes demand on grid resources and infrastructure



CONNECTED

Two-way communication with flexible technologies, the grid, and occupants



SMART

Analytics supported by sensors and controls co-optimize efficiency, flexibility, and occupant preferences



FLEXIBLE

Flexible loads and distributed generation/storage can be used to reduce, shift, or modulate energy use

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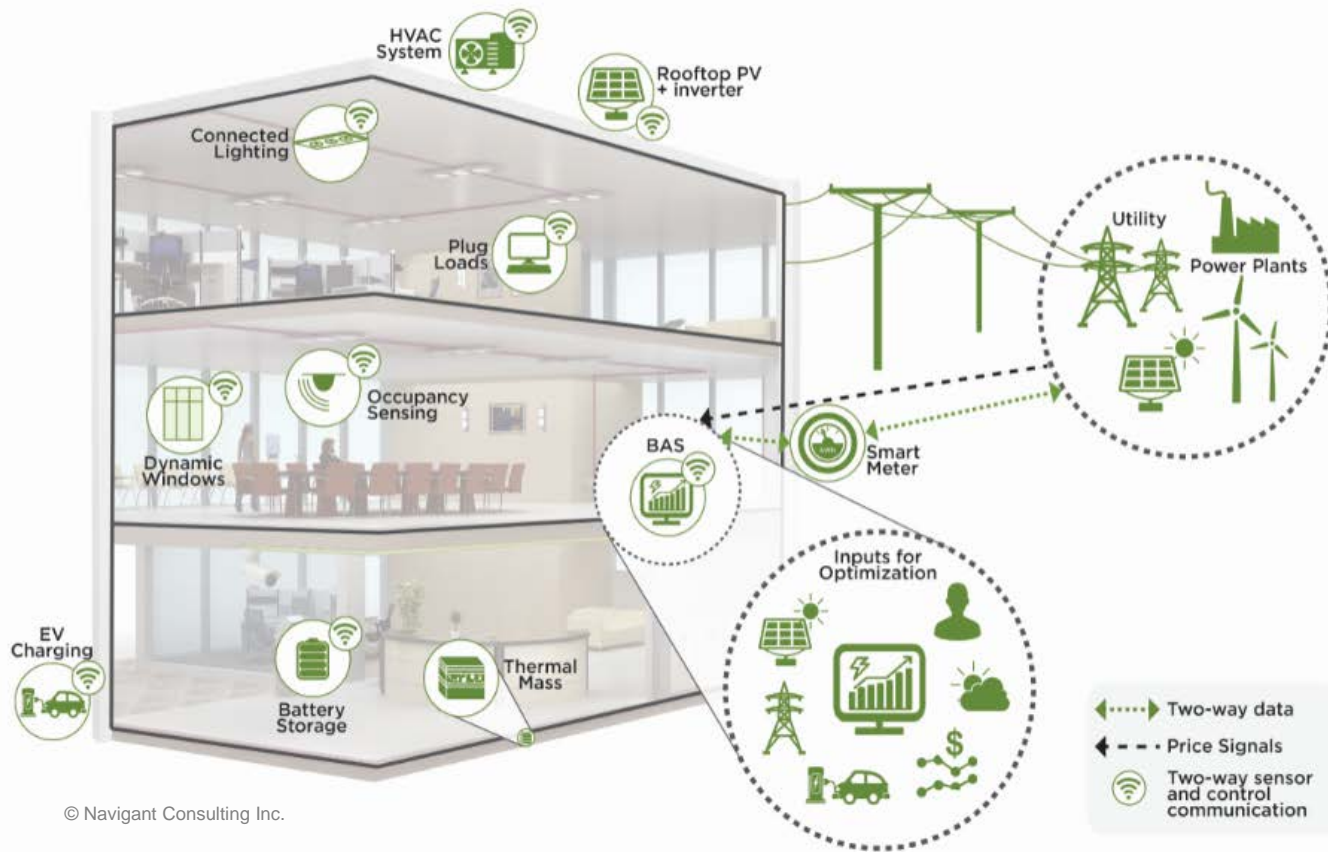


U.S. DEPARTMENT OF
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Energy Efficiency &
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MEEA
MIDWEST ENERGY EFFICIENCY ALLIANCE



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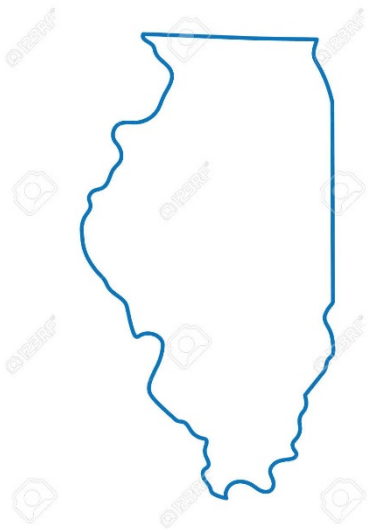
Energy Efficiency &
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Current Regional Status

Illinois

- **NextGrid : Illinois Utility of the Future Study**
 - New Technology Deployment and Grid Integration
 - Metering, Communications and Data
 - Customer and Community Participation
 - Regulatory, Environmental and Policy Issues
 - Reliability, Resiliency and Security
 - Electricity Markets
 - Ratemaking



Current Regional Status

Minnesota

- E21
 - Grid modernization and distribution level planning
 - Performance -based compensation for utilities
 - Integrated system planning



Current Regional Status

Ohio

- **Power Forward**
 - Grid Architecture
 - Distribution System Operations
 - Distribution System Market
 - Distribution system planning for entire territory of the electric distributed utilities
 - Rate Making



Current Regional Status

Michigan

- **Consumers Energy**
 - Residential Peak Power Savers Program: Offers customers direct control and behavioral DR programs (2017)
 - Energy Savers Club: Pilot program designed to reduce the energy load on our Swartz Creek substation



Current Regional Status

Michigan

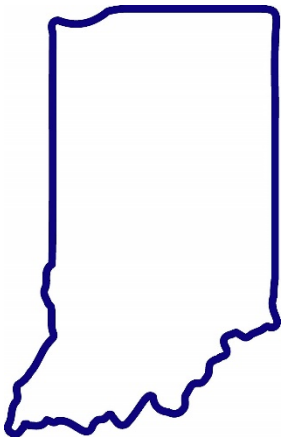
- **DTE Energy**
 - CoolCurrents Program: Utility can adjust AC on a high demand day
 - DOE Pilot study to install 1 MW of Distributed Community Energy Storage units and a grid connected storage battery on a circuit with a solar park



Current Regional Status

Indiana

- **Indianapolis Power & Light Company (IPL)**
 - IPL revAMP is a seven-year Plan to invest \$1.2 billion in the modernization of IPL's electric grid.
 - **Vectren**
 - Investment in Transmission & Distribution Upgrade and Smart Meter
- Total investment of \$3.1 billion towards grid modernization initiatives



Deployed Technology

Efficient
Systems and
Appliances

Microgrid

Grid-
Interactive
Efficient
Buildings

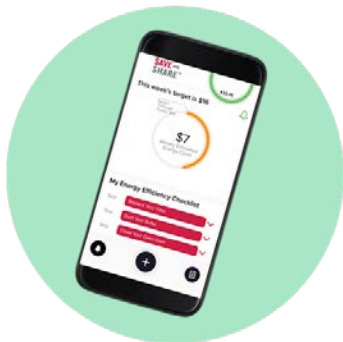
Communications
and Controls

Smart
Connected
Technology

DERS's

Utility Project *ComEd*

ComEd's Smart Grid and Smart Community Project in Bronzeville:



Save and Share app



Electric Vehicle Mobility



Microgrid



Community Energy Storage



Off-Grid Renewable Lighting



Smart Kiosk

Utility Programs

Xcel Energy

- Peak Partner Rewards
- Critical Peak Pricing Opt-In
- Batteries/Storage
- Home Energy Management (HEM)
- AC Rewards Smart Thermostat Program

Utility Programs

Ameren MO

- Advanced Load Management Pilot Program
- [St Louis Park Place Project](#)

Midwest Barriers

- Policies separate EE and DR
- Information gap on demand side performance
- Education, training and awareness
- Equipment communication
- Transparency and readily available information
- Regulatory requirements for cost-effectiveness and EM&V
- Silos within utility departments

Path Forward

- Break down the silos between the different program departments
- Create training and educational opportunities
- Easily available information for pilots, policies and demonstrative programs
- Support industry to advance interoperability and controllability
- Collaboration with ESCOs
- Incorporation of gas utilities?
- Local governmental involvement?



Questions

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