MIDWEST ENERGY EFFICIENCY SPOTLIGHT

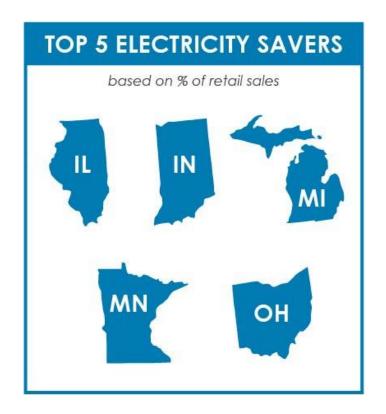




#MEEASpotlight

MEEA is excited to present the 2020 Midwest Energy Efficiency Spotlight, which showcases the impact energy efficiency (EE) policies and programs have had for Midwestern residents and businesses. The metrics we highlight depict the Midwest EE industry and chronicle the vast benefits EE has had on the region. The following facts and figures cast a spotlight on how the EE industry creates prosperous and resilient local, state and regional economies while driving energy savings to meet current and future energy demand.



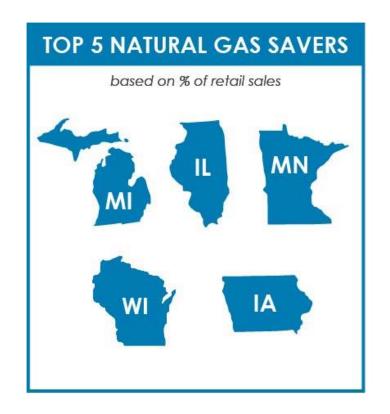




The Midwest saved 8.9 million MWh in 2018. The top five states are the regional leaders in energy savings, responsible for 76% of the region's total 2018 electricity savings.

In 2020, our 13 states will collectively invest almost \$1.87 billion dollars in EE to save both natural gas and electricity. EE investment in the Midwest has more than doubled over the past decade and is almost 15 times what it was at the turn of the millennium. This investment signals a regional commitment to energy savings, and demonstrates that utilities, policymakers, regulators and stakeholders recognize EE as a necessary resource to meet energy demand cost-effectively.





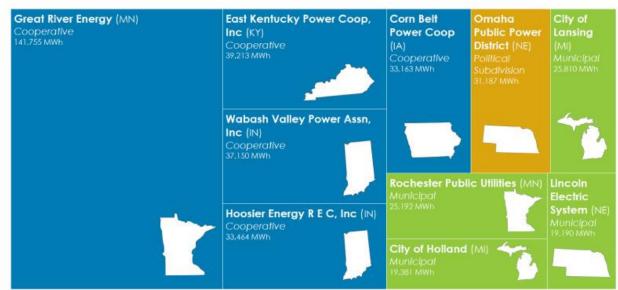


The Midwest saved 153 million therms in 2018. The top five states represent 90% of the region's annual natural gas energy savings. Natural gas efficiency savings and spending are better reported in some states than others, and there is no federal gas EE reporting as with electricity. Enhancing natural gas EE reporting would increase our understanding of this resource for our region.





MUNICIPAL & COOPERATIVE UTILITY HIGHLIGHTS

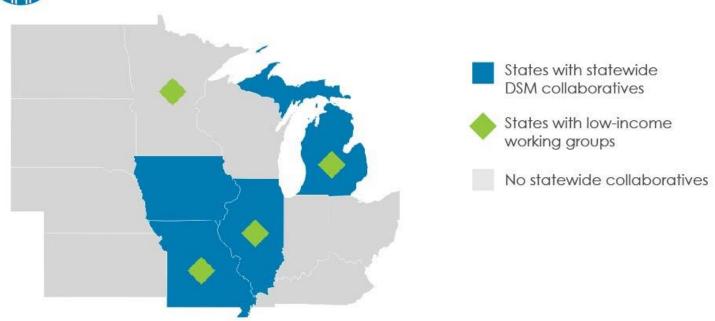


A quarter of the region's electric customers live in primarily small cities and rural areas. These areas are served by numerous municipal and cooperative utilities in the Midwest, many of which run strong energy efficiency programs.

Based on annual federal energy reporting for 2018, these are the top 10 electricity-saving municipal, cooperative and public power utilities in the Midwest. For consistency and comparability, some municipalities have been aggregated according to the joint action agencies that serve those member utilities.







Policies designed to drive energy savings vary across the Midwest. Some states use mandatory savings requirements while others utilize long range planning processes. Regardless of the directives to utilities, it's apparent an active statewide policy collaborative can foster transparency and improve program design. Stakeholder collaboratives can bring together utilities, implementers, evaluators, regulatory staff, consumer advocates, community leaders and other interested parties. Collaboratives facilitate information sharing and aim to reduce the number of contested issues in regulatory commission proceedings.

Illinois has a long-running statewide collaborative, and its website facilitates public participation in the collaborative.

Both **Illinois**' and **Michigan's** collaboratives are sustained through monthly meetings that allow for continued dialogue and regular updating of resources supporting the implementation of EE programs.

Finally, the Missouri Public Service Commission staff convene quarterly collaborative meetings with agendas jointly developed by stakeholders.



TOP SAVERS FROM ENERGY CODES







Special Honors

MOST IMPROVED STATE (ADOPTION):

Nebraska

In 2018, Nebraska became the first state in the Midwest to adopt the unamended 2018 IECC. This will result in an approximately 30% improvement in building efficiency.

MOST IMPROVED JURISDICTION (ADOPTION):

St. Louis County, MO

After more than five years, St. Louis County updated their residential and commercial code from the 2009 to 2015 IECC.

MOST IMPROVED (COMPLIANCE):

Missouri

Ameren Missouri helped to improve energy code compliance throughout their region with the implementation of a 3-year energy code support program.

Regular adoption of updated building codes and improved compliance with existing codes is critical to ensuring new commercial and residential buildings are energy efficient. Note the five states achieving the greatest energy savings through building energy code adoption in the residential and commercial sectors – among these states are national leaders in codes adoption.

Nebraska achieved most improved adoption by completing a residential compliance study and holding hearings to adopt the 2018 IECC (most up to date version of the national model energy code), establishing Nebraska's unamended 2018 IECC as the strongest residential code in the Midwest. This will result in approximately 30% improvement in building energy efficiency.

In 2019, **St. Louis, MO** updated its residential and commercial code from the 2009 to the 2018 IECC, earning the recognition of most improved adoption for a jurisdiction.

Missouri gets the most improved compliance award due to Ameren Missouri's efforts to help improve energy code compliance throughout their territory with the implementation of a 3-year energy code support program.









MOST ACTIVE

The Ameren Missouri Energy Code Compliance Collaborative met quarterly to address key compliance challenges and identify new opportunites.

MOST INNOVATIVE

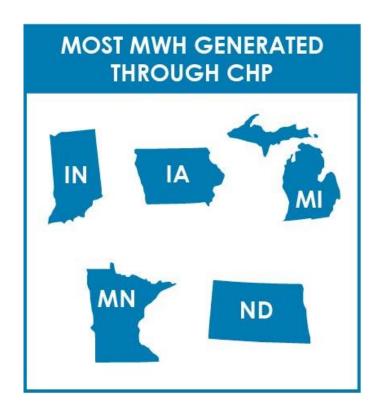
Michigan

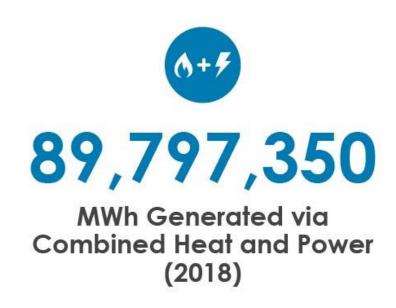
The Michigan Energy Office continued its facilitation of a code compliance collaborative and funded several innovative approaches to increasing energy code awareness and improving compliance.



Statewide collaboratives are also valuable in the building energy codes sector. The collaboratives that focus specifically on addressing barriers to building energy code compliance are gaining traction in the Midwest, as indicated by the map. 2019 saw collaboratives form in Michigan and Missouri. We anticipate greater activity in 2020 as collaboratives mature.





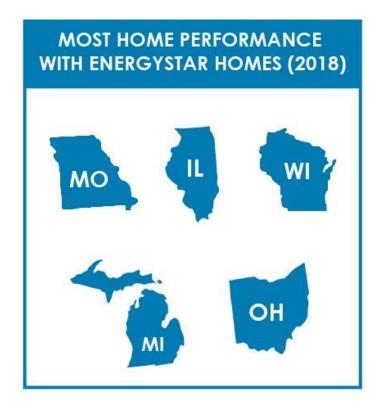


Combined heat and power (CHP), or cogeneration, is a system that recovers heat that would otherwise be lost in power generation and uses it to generate heating and/or cooling and power from a single fuel source. CHP can be over 40% more efficient than traditional generation and is more cost-effective than providing heat and electricity separately. In some states, utilities can count CHP toward energy efficiency goals.

Manufacturing, institutional facilities and commercial buildings are taking advantage of CHP to improve the reliability and resiliency of their operations.

According to federal electric generation data, 89.8 million MWh of electricity were generated through CHP in our region in 2018.

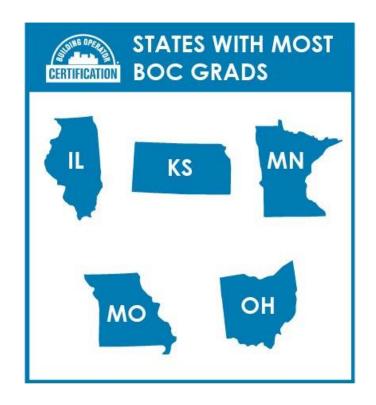






Within the residential sector, five Midwest states operate Home Performance with ENERGY STAR (HPwES) programs. HPwES helps homeowners save money on their energy bills, helps the residential real estate market value energy efficiency and allows homebuyers to easily identify energy efficient homes. MEEA contributed to this by implementing the award-winning Illinois Home Performance with ENERGY STAR program from 2009-2019. Over the duration of the program, more than 11,000 ENERGY STAR certificates were issued to Illinois residents. MEEA also facilitates the Midwest Home Performance collaborative, which brings together home performance program staff from across the region to foster discussions and create solutions through quarterly webinars and meetings.



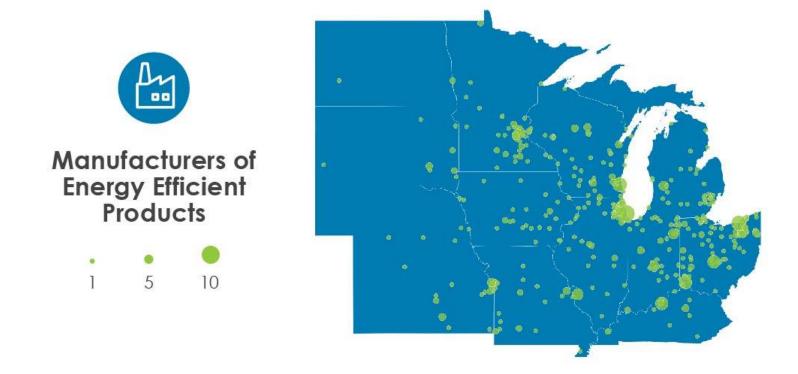




The Building Operator Certification® (BOC) program drives operational efficiency and creates economic opportunities for operators of facilities in the commercial and industrial sectors. The BOC program achieves measurable energy savings by training maintenance technicians and individuals directly responsible for day-to-day building operations. BOC graduates use the tools learned in training to help their facilities save energy, reduce costs and improve the efficiency of their building systems.

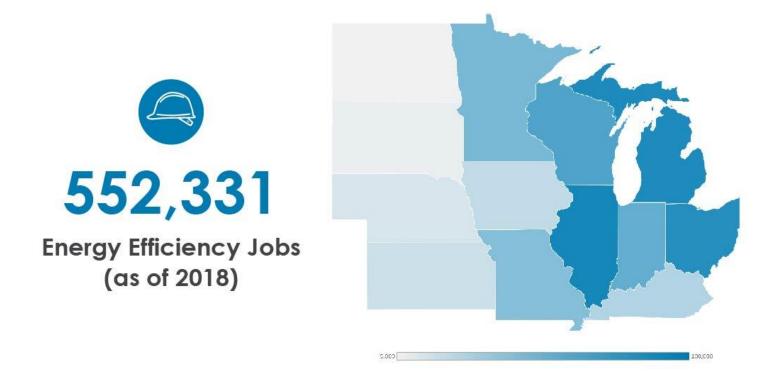
Fundamentally, BOC is a job training and workforce development program that adds skillsets to increase building operators' value in the job market. According to NEEC's 2012 Career Advancement Survey, 51% of BOC-certified professionals receive a salary increase, 25% are promoted, 16% receive bonuses and 9% acquire a new position. MEEA began running this program in 2003, helping 6,373 building operators achieve certification along the way.





Energy efficiency is proudly made in the Midwest. We have identified nearly **600 manufacturing locations** for energy efficient products, as well as company headquarters, across the region. The points on the map represent facilities associated with more than 400 companies and brands. This map represents 52 more locations than our map from last year and reflects the additional DOE Better Plants and EPA Energy Star challenge for industry partners added since last year.

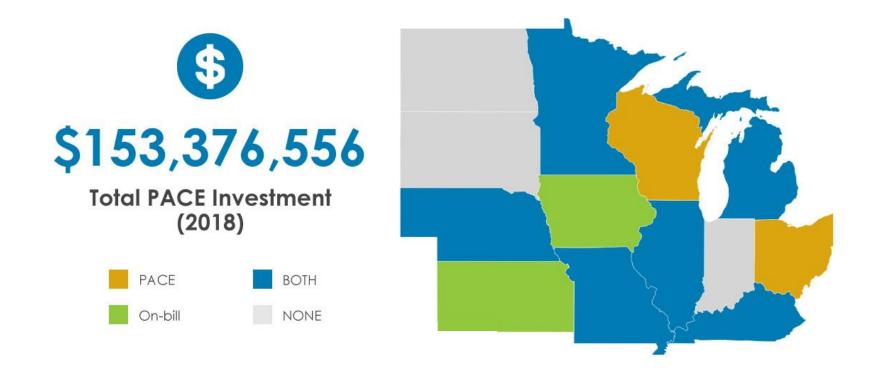




Energy efficiency employs more than half a million people across the Midwest and is rising. The workforce increased by more than 14,000 jobs from 2017 to 2018. This map shows where these jobs are located across the region.

So, what is an EE job? EE jobs span the sectors of blue- and white-collar work, driven primarily by small, local businesses as well as multinational corporations and research institutions. EE jobs can include installation, financing, program evaluation, manufacturing, advocacy and engineering of energy efficiency goods and services, among others.





For some customers, the upfront cost of energy efficiency upgrades is a barrier to energy savings. Financing mechanisms can increase an energy customer's access to energy efficiency. Property Assessed Clean Energy (PACE) and on-bill are two financing tools used by Midwestern states to expand the adoption of energy efficiency upgrades. PACE administrators offer loans to customers which cover all upfront costs of EE measures. The loan is paid through a special assessment on the property's tax bill. The on-bill model allows customers to pay for energy efficiency measures over time using a portion of bill savings from those measures. On-bill financing is now allowed in eight Midwestern states; PACE is also allowed in eight states and has funded 377 projects in the region since 2008.

Michigan PACE Market

Presented by:

Bali Kumar, CEO Lean & Green Michigan, LLC

Agenda

- Michigan PACE market 101
- 2019 Recap
- 2020: Looking Forward

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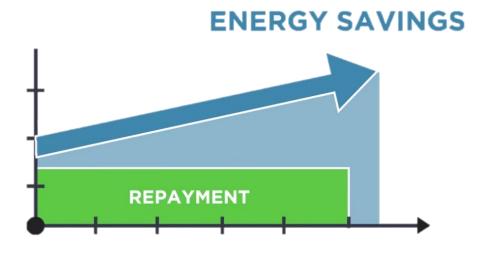
What is PACE?

Property Assessed Clean Energy (PACE):

a long-term financing mechanism that allows commercial, industrial, multifamily, non-profit, and agricultural property owners to make their buildings more energy efficient without incurring upfront costs.

The PACE Solution

"Property Assessed" - the energy project is repaid through a special assessment on the property tax. Result: no money down and positive cash flow



Example

Project Illustration						
Efficiency project cost	\$500,000					
Annual energy and maintenance savings	\$70,000					
Simple payback	\$500,000/\$70,000=7.14					

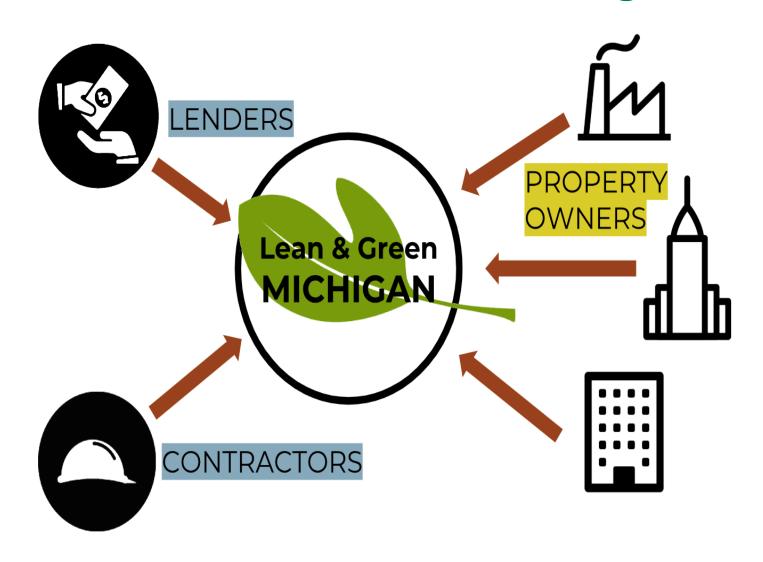
Short-term bank loan payback

Year	1	2	3	4	5	6	7
Energy savings	50,000	50,000	50,000	50,000	50,000	50,000	50,000
Maintenance savings	20,000	20,000	20,000	20,000	20,000	20,000	20,000
Total savings	70,000	70,000	70,000	70,000	70,000	70,000	70,000
Debt payments	87,654	87,654	87,654	87,654	87,654	87,654	87,654
Net savings	-17,654	-17,654	-17,654	-17,654	-17,654	-17,654	-17,654
Cum. net savings	-17,654	-35,308	-52,962	-70,616	-88,270	-105,924	-123,578

Long-term PACE assessment payback

Year	1	2	3	4	5	6	7
Energy savings	50,000	50,000	50,000	50,000	50,000	50,000	50,000
Maintenance savings	20,000	20,000	20,000	20,000	20,000	20,000	20,000
Total savings	70,000	70,000	70,000	70,000	70,000	70,000	70,000
Debt payments	42,984	42,984	42,984	42,984	42,984	42,984	42,984
Net savings	27,016	27,016	27,016	27,016	27,016	27,016	27,016
Cum. net savings	27,016	54,032	81,048	108,064	135,080	162,096	189,112

Lean & Green Michigan



Map of Participating Jurisdictions



PACE in Michigan

Local governments have joined Lean & Green Michigan

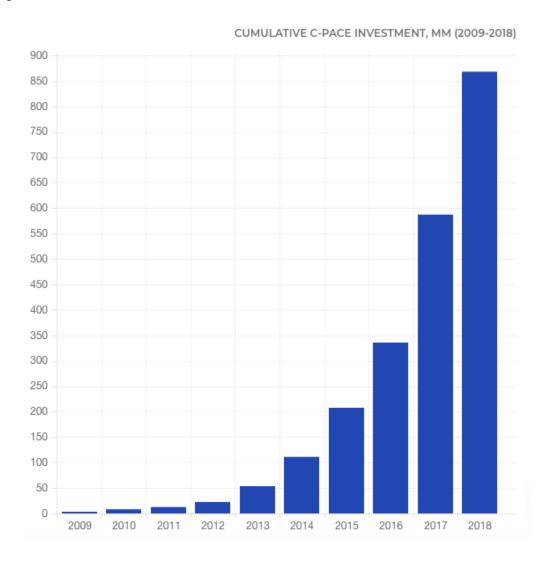
\$37M

worth of C-PACE projects have been completed in Michigan

of Michigan's population lives in Lean & Green jurisdictions

National C-PACE Market

- · More than 2,000 commercial projects, over \$1.1BN financed
- · Over 16,500 jobs created



Agenda

- Michigan PACE market 101
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- 2020: Looking Forward

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Total Number of PACE Projects

Over \$37 million

Invested in PACE Projects

293,000,000

Total kWh of Electricity Savings

207,163

Total Tons of CO2 Savings

181,391,000

Total Gallons of Water Saved

Over \$65 million

Total Savings

Over 540

Number of Jobs Created

2019 New Local Governments

- Jackson County
- Emmet County
- Cascade Township
- City of Hillsdale
- Bath Township
- Bedford Township

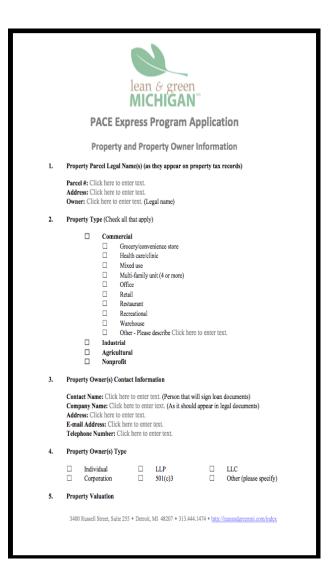
2019 PACE Summits

Detroit (with IBEW-NECA)

Grand Rapids (West Michigan)

"PACE Express"

- PACE projects \$250,000
 and below
- SIR and ESG not required
- Cheaper, faster, easier



First PACE Express



YMCA of Greater Toledo finances with PACE Express

Project Quick Stats:

PACE district: Jackson County

Property owner: YMCA of Greater Toledo

PACE contractor: GEM Energy

PACE lender: Greenworks Lending, LLC

Amount financed: \$153,270 Project term: 20 years

Total Energy Savings: \$111,480* Energy conservation measures:

- Multiple furnace upgrades
- Digital thermostats
- Boiler upgrade
- LED lighting
- · Domestic hot water

Impact: The YMCA Storer Camps will result in a reduction in CO2 emissions equivalent to eliminating the energy use of 74.7 homes for each of the 20 years of the project.

*Under PACE Express, savings is not required to exceed investment.

Overview

Sitting on approximately 1,300 acres of beautiful Irish Hills region of southeast Michigan, the YMCA Storer Camps PACE project is part of a larger energy efficiency initiative the Greater Toledo YMCA has in the works, in which five other YMCA properties in northwest Ohio will be utilizing PACE.

To finance energy improvements at Storer Camps, the property owner utilized Lean & Michigan's PACE Express program — a new 2019 program that is designed to help finance smaller PACE projects (at and below \$250,000 in PACE financing). The YMCA Storer Camp marks Lean & Green Michigan's first PACE Express project!

The YMCA Storer Camps PACE project also marks the first PACE project to close in Jackson County, and the first Michigan PACE project for contractor GEM Energy.

The YMCA Storer Camps serves as an excellent example for how smaller PACE Express projects can finance significant energy efficiency upgrades through PACE Express.

First House of Worship

LEAN & GREEN MICHIGAN CASE STUDY: Detroit Unity Temple

Dec. 2019



Project Quick Stats:

PACE district: Wayne County

Property owner: The Detroit Unity Association PACE contractors: Green Portfolio Solutions,

Wright Energy Partners

PACE lender: Greenworks Lending, LLC

Amount financed: \$250,000
Project term: 20 years

Total energy savings: \$527,825* Energy conservation measures:

- Lighting improvements
- Insulation
- Building envelope
- Roof repair

Impact: The Detroit Unity Temple PACE project will result in a reduction in CO2 emissions equivalent to eliminating the energy use of 124

Overview

Located in the heart of Detroit's Palmer Park, the historic Detroit Unity Temple is the first house of worship to take advantage of PACE financing! This project is also the first PACE Express project completed in Wayne County.

Green Portfolio Solutions helped Detroit Unity Temple to receive \$250,000 - the maximum amount of financing under the PACE Express program.

Wright Energy Partners will complete the retrofit. The project bundles important roof repair with lighting, insulation, and building envelope improvements. Wright Energy Partners curated a cash-flow positive PACE project for Detroit Unity Temple that will result in long-term utility savings for the Detroit Unity Association, and a more comfortable building for all who visit and worship at Detroit Unity Temple.

New construction policy

- 2019 Policy based on Wisconsin and grandfathering prior code → transitioning to new code
- 2020 Policy finance measures that exceed code

First New Construction & New Largest



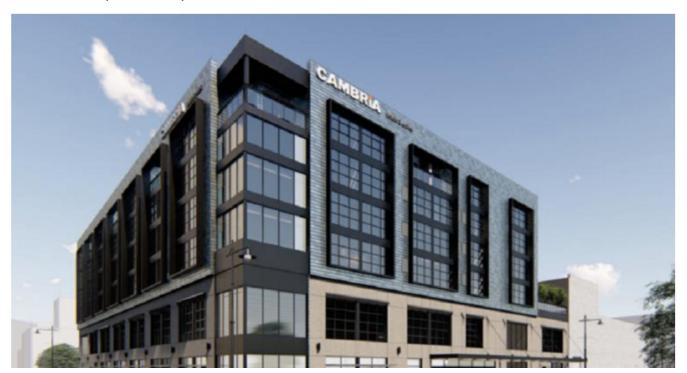


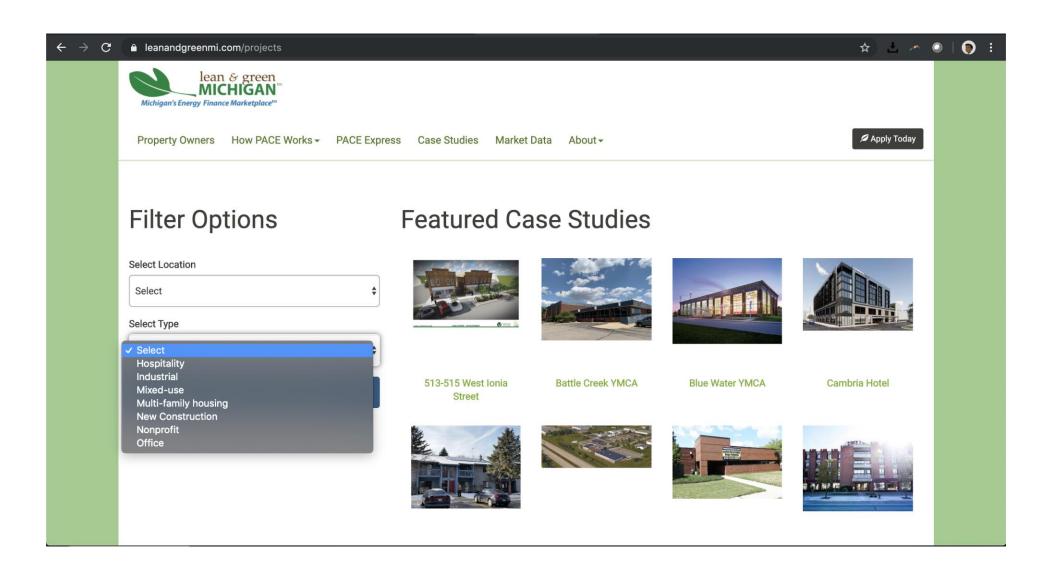
f SHARE

in SHARE

➡ PRINT

- Cambria Hotel in Detroit is being redeveloped using special energy efficiency funding stream
- About \$6.8 million of the \$49 million total development cost will come through PACE program
- · Cambia is expected to open in 2020





Agenda

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2020 – The Next Frontier

- New Construction will take off
- Cannabis
- Offices in Lansing and Grand Rapids
- PACE Summits in Ann Arbor and Northern MI
- Closer partnerships incl. MEDC, MEDA, ULI, etc.

Contact

www.leanandgreenmi.com

Bali Kumar, 313-444-1474 bali@leanandgreenmi.com

<u>info@leanandgreenmi.com</u> for general inquiries



MEI is administrator of Show Me PACE



Josh Campbell – Exec. Dir. MEI – Administrator Show Me PACE Josh@moenergy.org | 573-616-1046 | www.moenergy.org | www.showmepace.org



PACE was authorized by the Missouri State Legislature in 2010

Legislation spells out

- > requirements for acceptable projects
- > assessment process
- > designation of clean energy districts as political subdivisions.

PACE IN MISSOURI



FOUR ACTIVE MISSOURI PACE PROGRAMS

Clean Energy Development Boards (CEDB) are authorized by Missouri law and serve as the local governing boards for Missouri PACE programs.

There are four active CEDBs:

- Show Me PACE Clean Energy District 55
 Communities (2015)
- Missouri Energy Savings Program (STL County) (2016)
- Missouri Clean Energy District 80
 Communities (2010)
- Set the PACE St. Louis (City of St. Louis) (2013)









\$5.93 Billion Total National PACE Deal Flow

C-PACE: \$756mm

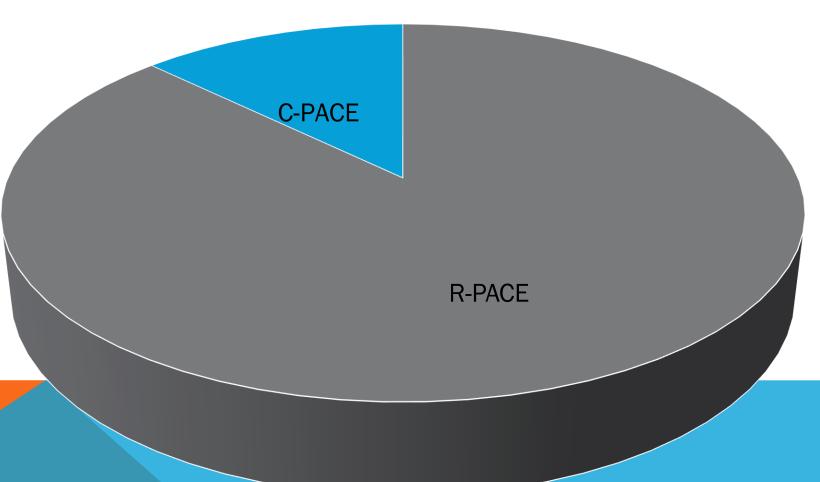
~1790 projects

~20 active states

R-PACE: \$5,172mm

~220,000 projects

3 states: CA,MO,FL



■ Residential PACE ■ Commercial PACE





Economic Impact 2015-2019

25
Commercial
Show Me PACE
projects funded

\$47 million In commercial PACE financing \$52 million Total energy savings \$225
million
Total
economic impact

The Missouri Energy Initiative established Show Me PACE in July, 2015. Fifty-five municipalities across Missouri have joined Show Me PACE since then.

Show Me PACE Approved Commercial Projects \$47 million in C-PACE financing

Greater Kansas City Area



Hy-Vee Arena \$6.3 million Building Type: Arena Measures: Lighting, HVAC Lender: Twain Financial Partners



Interstate Building \$2.6 million Building Type: Hotel Measures: Lighting, HVAC, envelope & domestic hot water Lender: Twain Financial Partners



Brookfield Building \$2.4 million Building Type: Hotel & Apartments Measures: Lighting, HVAC, Roof, Windows Lender: CleanFund Commercial PACE



Hotel Indigo \$1.7 million Building Type: Hotel Measures: Lighting, HVAC, Roof, Windows Lender: Twain Financial Partners



Beacon Hill \$1.4 million Building Type: Hotel Measures: Lighting, HVAC Lender: Twain Financial Partners



Shopping Center \$1.4 million Building Type: Retail Measures: Lighting, HVAC, Roof Lender: Petros PACE Financing



LSP Walnut \$622,512 Building Type: Hotel & Apartments Measures: Lighting, HVAC, Roof, Windows

Lender: CleanFund Commercial PACE

Greater St. Louis Area



Cambridge Engineering \$610,000 Building Type: Manufacturing Measures: Lighting, AC, roof Lender: PACE Equity



7208 Weil St., Shrewsbury \$149,000 Building Type: Manufacturing Measures: Lighting, HVAC Controls Lender: PACE Equity



2458 Old Dorsett, Maryland Heights \$133,000 Building Type: Commercial Measures: Lighting, HVAC Controls Lender: PACE Equity

Mid-Missouri



Columbia Independent School \$323,000 Building Type: School Measures: Solar, Lighting, HVAC Lender: CleanFund Commercial PACE



Broadway Hotel, Columbia \$3.5 million Building Type: Hotel Measures: Lighting, HVAC Lender: Stonehill Strategic Partners



Fairfield Hotel, Jefferson City \$465,219 Building Type: Hotel Measures: Lighting, HVAC, Signage Lender: Petros PACE Financing

SMP PROJECTS CONTINUED



Flashcube \$3.7 million Building Type: Mixed use Measures: Lighting, Roof, Wall, Windows, Energy Recovery Lender: PACE Equity



Shankman/Michelson \$3.3 million Building Type: Mixed use Measures: HVAC, Lighting, Electrical Systems, Builiding Envelope Lender: Twain Community Partners



West Bottoms Flats \$2.9 million Building Type: Mixed use Measures: Lighting, Lender: Twain Community Partners



KC Hyatt House \$8 million Building Type: Mixed use Measures: HVAC, Lighting, Roof, Windows Lender: Petros PACE Financing

Southwest Missouri



MoonRidge Foods \$4,000,000 Building Type: Agricultural Measures: Solar, Lighting, HVAC, Custom measures Lender: Twain Financial Partners

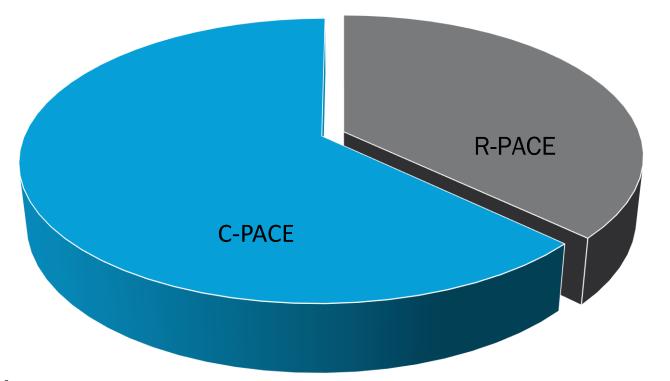
Kansas City Area continued



Hammerspace \$158,824 Building Type: Manufacturing Measures: Solar Lender: Dividend



Comfort Inn \$1,141,571 Building Type: Hotel Measures: Lighting, HVAC, Insulation Lender: Petros



\$118 Million Total Missouri PACE Deal Flow

C-PACE: \$84mm R-PACE: \$34mm

~40projects ~2500 projects

■ Residential PACE □ Commercial PACE



Residential PACE in Missouri

- 1st residential occurred in 2016 (3 years following first CPACE closing)
- Bankers and Collectors have expressed concern with Residential PACE
 - Primary lien position
 - County Collector collecting assessments
 - Oversight consumer protection
- Resulted in legislation (looking like California law)
 - State oversight, increased costs



National Residential PACE

- 4 to 5 providers (2 majors)
- California was largest volume of RPACE
 - •2018 legislation resulted in 50% reduction in volume
- National providers seeking other opportunities
 - Ohio, NY, NJ and Chicago



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Josh Campbell – Exec. Dir. MEI – Administrator Show Me PACE Josh@moenergy.org | 573-616-1046 | www.moenergy.org | www.showmepace.org

THE END

THANKS FOR VISITING





#MEEASpotlight

The Midwest Energy Efficiency Spotlight shares the impacts associated with strong energy efficiency practices across the region, from the impressive energy savings to job creation and empowering customers to save money on their energy bills. MEEA will continue to shine a spotlight on the successes across the Midwest.

Learn about our methodology and sources here. Questions? Contact MEEA Policy Director Nick Dreher at ndreher@mwalliance.org.