



Welcome

Opportunities for Renewable Energy in Michigan's Commercial and Industrial Sector

Webinar will begin shortly

Housekeeping



All lines are muted during the webinar.



Submit your questions using the **“Question/Chat”** box in your Go To Webinar tool bar.



We are recording this webinar



MICHIGAN DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY

ENERGY SERVICES

Lisa Thomas, Project Manager

ThomasL17@Michigan.gov | 517-282-6646

800-662-9278 | Michigan.gov/EGLE

Opportunities for Renewable Energy in Michigan's Commercial and Industrial Sector

- Current catalog of renewable energy resources in Michigan
- MI Healthy Climate Plan



Today's Speakers

Lawrence Technological University
Centrepolis Accelerator

Dan Radomski, Chief Executive Officer
Loch McCabe, Expert in Residence



Renewable Energy Opportunities for Michigan Commercial and Industrial Sectors

EGLE Michigan Clean Energy Assets Roadmap Program
February 28, 2023



Introduction

Growing Michigan's renewable and clean energy industries represents a multibillion-dollar economic opportunity, with significant additional benefits, such as, being environmentally clean, energy-efficient, and providing a cost-effective approach essential in meeting Michigan's MI Healthy Climate Plan and the state's greenhouse gas emission reductions obligation under the United States Climate Alliance (i.e., Executive Directive 2019-12) necessary to avoiding the many challenges posed by climate change.

Industry roadmaps are a proven technique for providing strategic guidance for economic development efforts to accelerate innovation and commercial activity, and are a dynamic tool for setting priorities, allocating resources, aligning stakeholders, and focusing efforts.

The Michigan Clean Energy Asset Roadmaps for renewable energy (wind, solar and geothermal) sectors was developed to quantify (i.e., map) each sector and identify, evaluate, and detail opportunities to significantly accelerate sector growth in Michigan's commercial and industrial markets.

This webinar seeks to showcase the current catalog of renewable energy resources in Michigan, as well as understand market impediments and what it takes to grow the renewable energy sectors in Michigan.

** "Commercial and Industrial" (C&I) includes commercial, industrial, large scale residential/multi-residential, agricultural, institutional, and governmental.*



Introduction

Dan Radomski



Dan is currently CEO of Centrepolis at Lawrence Technological University who manages the C³ Accelerator focused on cleantech, climatech and circular economy ventures. Dan also supports the NextCycle Michigan a program focused on diverting waste from landfills to value added products. Dan was previously Vice President of Industry and Venture Development at NextEnergy.

Loch McCabe



Loch is an Expert in Residence at Centrepolis Accelerator where he support market research and advisory services for clients. Loch is also the founder and leader of Shepherd Advisors, a growth strategy consulting firm. Loch focuses on methodical research, growth strategy development, and building robust foundations for successful and sustainable growth.



Thanks To Our Sponsor and Partners



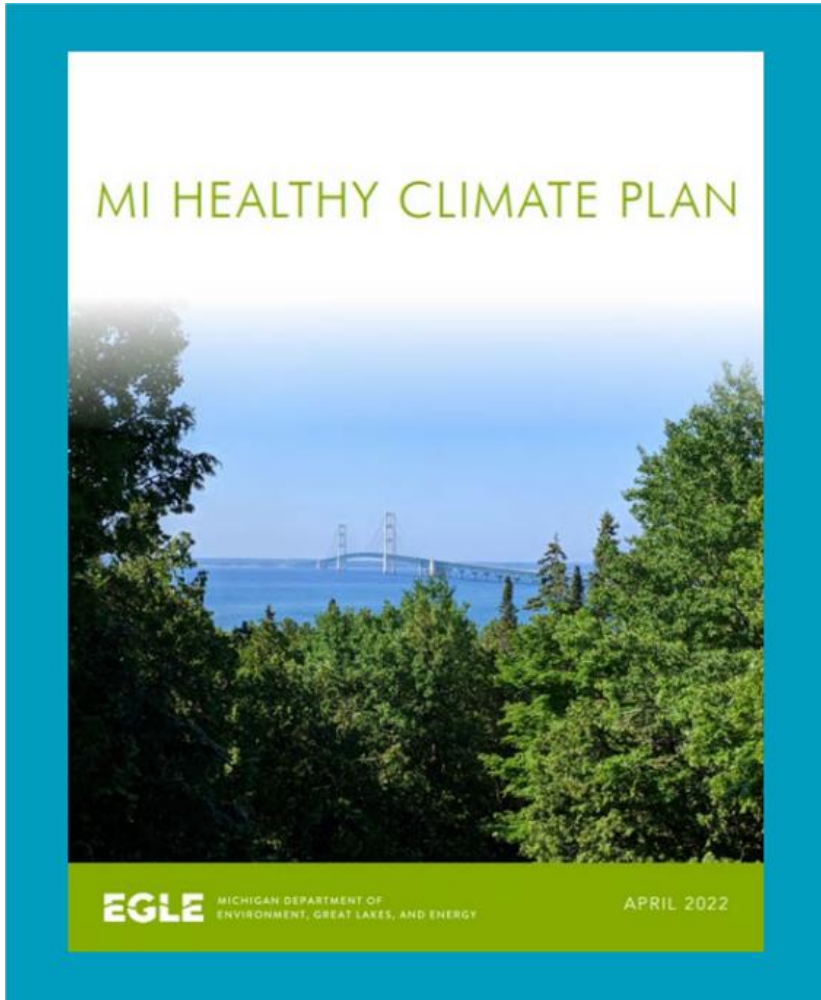


Webinar Outline

- MI Healthy Climate Plan
- Methodology
- Michigan C&I Energy Usage
- Current State of Commercial & Industrial (C&I) Adoption of Renewable Energy (RE)
 - Solar
 - Geothermal
 - Wind
- RE C&I Roadmap Recommendations to Accelerate C&I RE Adoption
 - Integrate C&I RE into MI Clean Healthy Plan and Michigan RE Acceleration Practices & Policies (Policy)
 - Promote C&I RE Awareness and Best Practices (Demand)
 - Lower RE Costs for Michigan C&I Customers (Demand)
 - Increase Public-Private Engagement to Boost RE Supplier C&I Success (Supply)
 - Accelerate C&I RE Innovation and Application R&D (Supply)
- Additional Resources



MI Healthy Climate Plan



Goals:

- Carbon neutrality by 2050
- 52% emission reductions by 2030

Commitments:

- 60% of State's electricity from renewables by 2030
- 2 million EV's on State roads by 2030
- Reduce emissions in homes and businesses by 17% by 2030
- Triple Michigan's recycling rate to 45% and cut food waste in half by 2030
- Environmental justice - 40% impact in disadvantaged communities



Michigan C&I Energy Usage

Large scale C&I RE adoption and deployment is critical to achieving the MI Clean Healthy Plan goals.

- Michigan C&I establishments consume nearly 60% of the state's electricity usage
- Nearly 500,000 commercial establishments consume an average of 60 MWH per customer per year
- Nearly 5,000 industrial establishments consume > 5,600 MWH of electricity per customer per year

2018 Michigan Electric Sales Data

	Residential	Commercial	Industrial	Other	Total
MWH/Yr	33,943,646	29,881,452	19,676,781	396,801	83,898,680
Customers	4,188,491	498,120	3,475	4,966	4,695,052
Average MWH/Customer	8	60	5,662	80	18
% MWH	40%	36%	23%	0.5%	100%
% Customers	89%	11%	0.1%	0.1%	100%

Source: STATISTICAL DATA OF TOTAL SALES ELECTRIC UTILITIES IN MICHIGAN YEAR ENDED DECEMBER 31, 2021

https://www.michigan.gov/-/media/Project/Websites/mpsc/consumer/electric/electricdata_19.pdf?rev=8c00860a6e1a4607a4ee8b3a19141816



Methodology

- Independent research and working with project partners
- Qualitative interviews of 25 RE industry leaders and suppliers (January – February 2022)
- Online surveys of 55 RE suppliers (May-June 2022)
- Industry convenings of more than 40 C&I solar and 16 geothermal leaders, suppliers and buyers (June and July 2022)

This is a “Supply” side analysis from the perspectives of more than 80 renewable energy manufacturers, installers, engineering firms, developers and others in the value chain that serve the C&I markets.

Access full reports on the EGLE website
<https://www.michigan.gov/egle/about/organization/materials-management/energy/industry/clean-energy-assets>



RE Industry Study Participants

Advanced Energy Group	Distributed Power	Lewenz Solar	RW Mead & Sons
Airtech Equipment Inc	DTE Eenergy	LookingBus	Salas O'Brien
Ameresco	Ecojiva	Mackinaw Power	Schneider Electric
Analytical Design Service Corp.	Energy Alliance Group	Mahlon Mechanical Services	Scottsdale Gear&Boiler
ApEAL	Enertech	McNaughton-McKay	SkySpecs
Apex Clean Energy	Esemay LLC	Metro Consulting Associates	SmithGroup
APT Solar Solutions	GEM Energy, LLC	Michigan Chapter NECA	State of Michigan
Barton Malow	General Motors	Michigan Chemistry Council	Strategic Energy Solutions
Bedzyk Bros, Inc.	Geothermal Innovations Inc.	Michigan Conservative Energy Forum	Sumpter Solar Services LLC.
Blueterra Energy	GMB	Michigan Historic Preservation Network	Sunrun
Bowman Consulting	Green Estate Solutions Inc.	Michigan Saves	Superior Heating & Cooling, Inc
Catalyst partners	Green Portfolio Solutions	Michigan Solar Solutions	The Energy Alliance Group
CBS Solar	Harvest Solar	Midwest Geothermal	The Green Panel
Chart House	Hemlock Semiconductor	MTD Consulting Group	Thumb Electric Cooperative
Christman	Homeland Solar	NSF	TowerPinkster
Clark Construction	IGSHPA	Occupant Care, Inc.	University of Michigan
Clean Energy Buyers Association	Inovateus Solar	ONE Energy	Utopian Power
Consumers Energy	Invenergy	Petrichor Consulting	Waterfurnace
CWP	Lakeshore Die Cast	PINK Energy	Wellconnect
Dandelion Energy	Lansing Community College	Pratt & Associates	Williams Distributing
Debora Smith Energy Partners	Lean & Green Michigan	Ranger Power	Zeven Element Design Institute PLLC



C&I Adoption of Solar Energy





C&I Demand for Solar Energy is Growing

OPPORTUNITY

- More C&I users are asking about solar projects
 - Solar contractors across the board report growing C&I interest
 - DTE's *MiGreenPower* has solar power contractors more C&I customers than they can readily service
- Many C&I firms have high significant electric loads that can be offset with solar
 - Commercial solar installations usually range from 500KW to 2 MW
 - Many industrial solar installations can be 2+ MW
- Michigan has thousands of large and well-engineered C&I flat roofs available for solar
 - Large portion of these roofs have 150% load safety factor (1980s code)

ADOPTION DRIVERS

- C&I firms want to lower energy costs and uncertainty
 - Michigan electric rates are relatively high and are trending upward
 - Solar favors time-of-use rates
 - Energy redundancy is increasingly attractive
- Solar is becoming more affordable
 - Solar costs have fallen significantly over last 10 years
 - Federal solar tax credit is 30+% for many C&I organizations
- More shareholders and customers are asking C&I firms, esp. Fortune 500s, to purchase clean energy
- Demand for onsite EV charging further accelerates interest in solar



C&I Demand is Systemically Constrained

TOP CONSTRAINTS

- C&I firms in Michigan have few options to secure solar. Most wanting solar can only:
 - Purchase premium priced solar power created through specific programs developed by utilities
 - Install onsite “distributed generation” (DG), or behind-the-meter solar systems, which often leads to smaller and more expensive than optimal
- Michigan utilities activity discourage C&I DG solar
 - Restrictive size limits
 - Low net-metering pricing for solar
 - Expensive and time-consuming interconnection studies, especially for large C&I solar systems
- Michigan law does not allow “meter aggregation”
- Some local governments further raise costs for solar

TOP BARRIERS FOR SUPPLIERS

- Lack of utility cooperation with 3rd party solar suppliers and C&I customers
- Low compensation rates for outflows from onsite solar generation
- Lack of consistent standards for local solar zoning, permitting and taxation
- Lack of state policies promoting C&I solar
- Lack of flexibility to place solar away from loads or aggregate across multiple sites

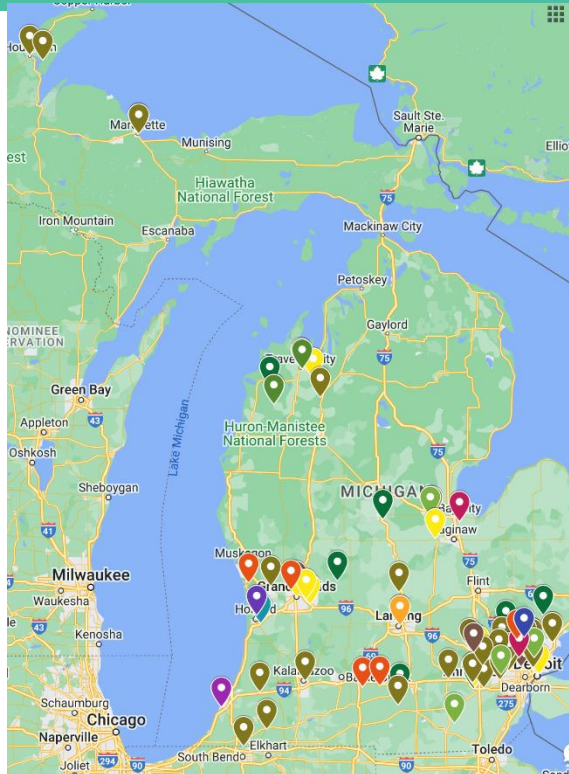
Source: C&I Solar Supplier Survey



Michigan Has A Solid C&I Solar Supply Ecosystem

> 100 C&I SOLAR SUPPLIERS

- 20+ Manufacturers in Supply Chain
- 40+ Installers
- 25+ Engineering & Consulting Firms
- 10+ Electrical Contractors
- 7+ Financiers
- 4+ Distributors
- 4+ Construction



GREATEST SUPPLIER NEEDS TO INCREASE C&I ADOPTION

Better/More ...	%
■ Better Policies	40%
■ Qualified Employees	28%
■ Customers	20%
■ Suppliers	8%
■ Energy Industry Connections	4%
■ Partners	-
■ Capital	-

Source: C&I Solar Industry Forum (n=25)



Solar Solar Suppliers Need Trained Workforce

Michigan Institutions w/ Solar Courses

When asked, solar suppliers reported:

- Having relevant certificates and degrees are important – 71%
- Michigan's lack of relevant workforce training hinders their ability to provide C&I solar – 53%
- Unaware of Michigan solar education and training resources – 76%

Source: C&I Solar Supplier Survey (n=17)

Delta College

Dorsey College

Ferris State

Grand Rapids CC

Grand Valley State

Henry Ford CC

IBEW Local 58

Jackson CC

Kellogg CC

Lansing CC

Macomb CC

Michigan State University

Michigan Tech University

Monroe CC

Muskegon CC

Northwestern Tech

Oakland CC

Oakland University

Washtenaw CC

Wayne County CC

Wayne State University

Western Michigan University

University of Michigan

= **Institutions** C&I Solar Energy Forum suppliers reported they have hired from



Threats To Avoid & Paths Forward

THREATS IF ADOPTION TOO LITTLE TOO LATE

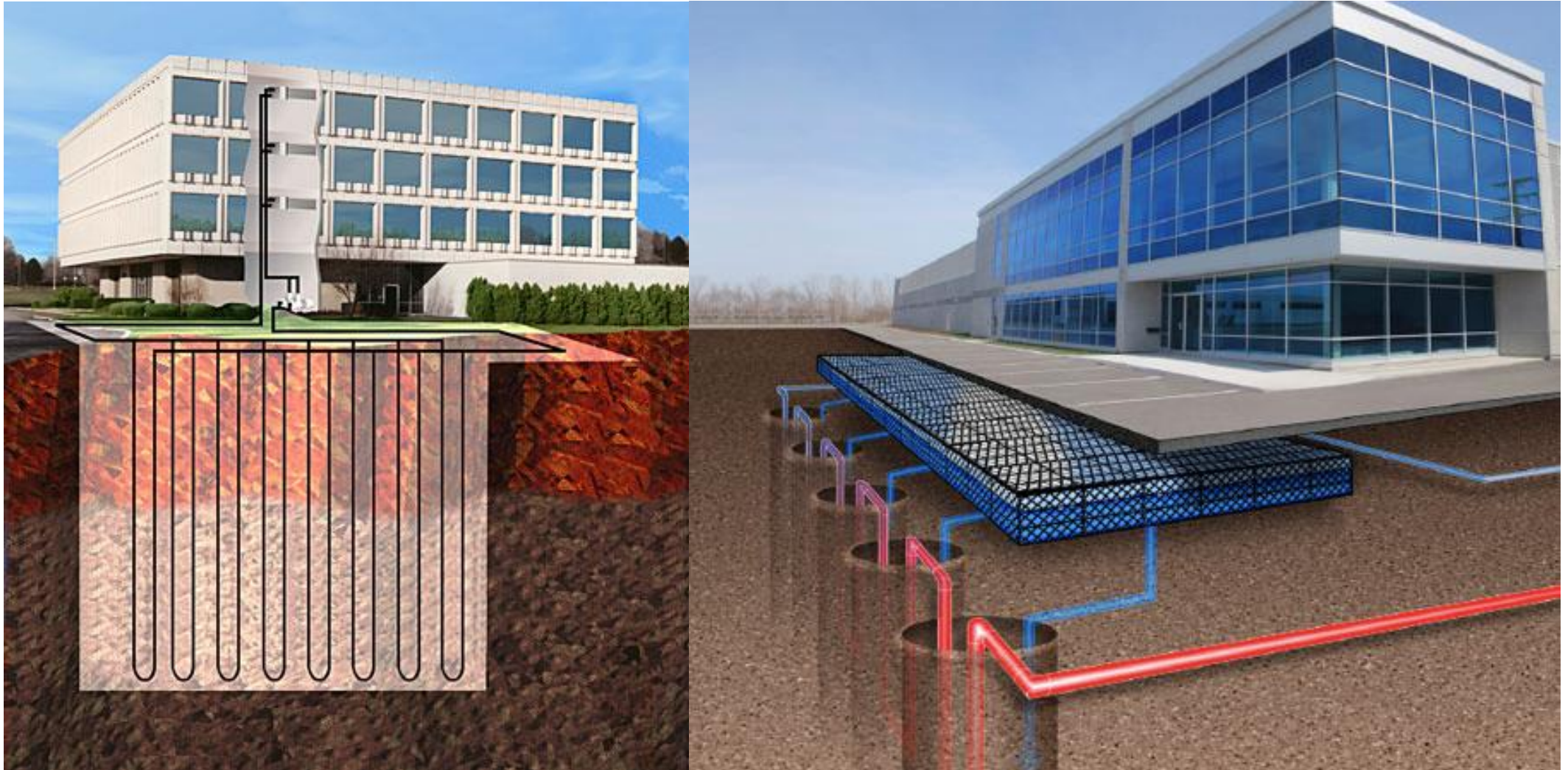
- More stress on Michigan's electrical grid
- Higher electric rates
- Missed decarbonization goals
- Weakened Michigan's C&I solar ecosystem

PATHS TO ACCELERATE ADOPTION

- Accelerate electrification w/ solar DG
- Align utility and 3rd party solar developer interests
- Make policies and processes friendlier for rapid C&I solar adoption
- Improve C&I customer financing
- Publicize growing number of C&I solar success stories

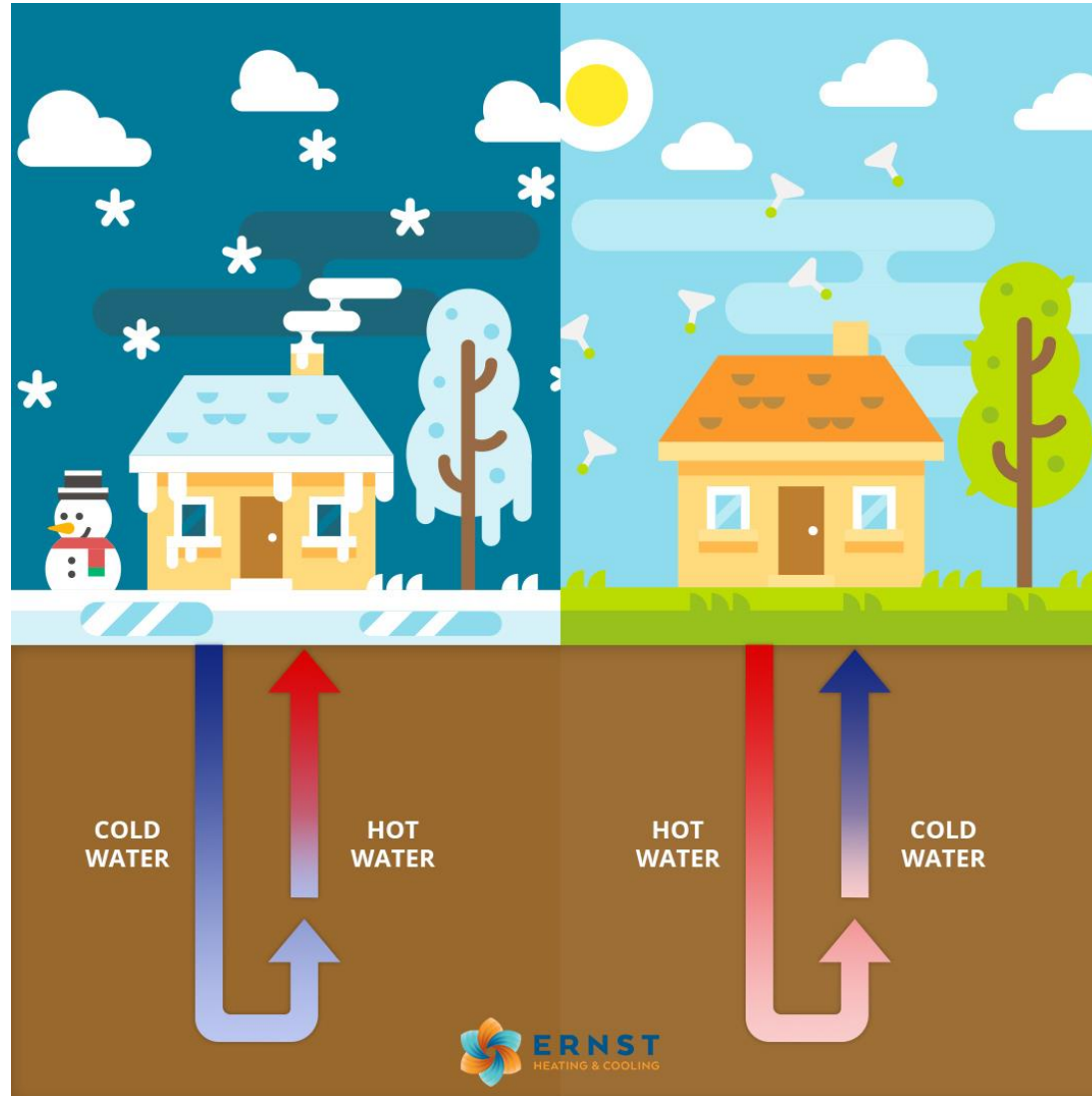


C&I Adoption of Geothermal Energy





Geothermal – How it Works





Geothermal Works Well for Michigan C&I

WHY GEOTHERMAL

- ~40,000 residential geothermal installed in Michigan over several decades (*Geothermal Exchange Organization*)
- Geothermal leverages the earth as a heating/cooling “battery” for HVAC systems.
 - Improved efficiencies by 5x+ compared to gas
 - High efficiencies reduce summer peak electrical loads
 - Reduced/eliminated use of natural gas, propane, or fuel oil
 - Lower overall carbon footprint
 - Integrated heating + cooling into one system
 - Carbon free when powered by other RE energy
- Michigan’s four-seasons provide better heating and cooling loads and reduced costs compared to many other regions of the country

ADOPTION DRIVERS

- Reasons C&I users find geothermal attractive include:
 - Significantly lower lifecycle costs
 - Less natural gas/propane
 - Lower electrical costs for cooling
 - Lower HVAC maintenance/replacement costs compared to conventional HVAC system
 - Longer service life
 - Geothermal loops last 25-50 years or longer, compared to ~15 years for conventional HVAC systems
- Geothermal becoming more affordable
 - Federal geothermal tax credits are 30+% for many C&I organizations
 - Other incentives include the 179D tax credits and accelerated depreciation and lower electricity costs



Geothermal Has Many C&I Applications

C&I GEOTHERMAL APPLICATIONS

- Educational & Government
- Commercial
 - Auto dealerships
 - Hotels
 - Office buildings
 - Residential and multi-family developments
 - Big box stores
 - Data centers
 - Sports facilities
 - Medical centers
 - Houses of worship
- Industrial
 - Operations w/ metal treatment
 - Power plants
 - Mines
- Agricultural
 - Dairies
 - Food Processing
 - Nurseries and greenhouses

MICHIGAN C&I GEOTHERMAL EXAMPLES

- Public Sector:
 - Michigan State Capitol
 - US 75 visitor centers
 - Lansing Community College – West Campus
 - Monroe Community College
 - University of Michigan
 - City of Wyandotte
 - East Lansing Schools
 - Midland City Jail
 - Ann Arbor Public Schools
- Private Sector:
 - Meijer
 - Coveyou Farm Market
 - McDonalds (Westland)
 - Elzinga & Hoeksema Greenhouse
 - La Fontaine Auto
 - NLB Pump



C&I Geothermal Adoption Lags Potential

TOP CONSTRAINTS

- Geothermal is not effectively promoted in state
 - “Out of sight - out of mind”
- Geothermal is easy for architects and owners to overlook
 - Current market is very small
 - Economics can seem to be “Too good to be true”
 - Industry is focused on residential, not C&I market
- Geothermal systems are complex to engineer properly; loops require training to install correctly
 - Few architects, engineers and contractors are familiar with, experienced with or certified for geothermal
- Upfront geothermal project costs are often higher than conventional HVAC designs
- Michigan financing options are limited
 - Michigan utilities do not provide incentives for installs that “switch” fuels away from natural gas (P.A. 342)

TOP BARRIERS FOR SUPPLIERS

- Lack of financing incentives to reduce up front costs
- Lack of state policies promoting geothermal
- Lack of effective industry marketing, promotion and customer education
- Lack of consistent standards for local government permitting
- Lack of qualified and certified architects and engineers

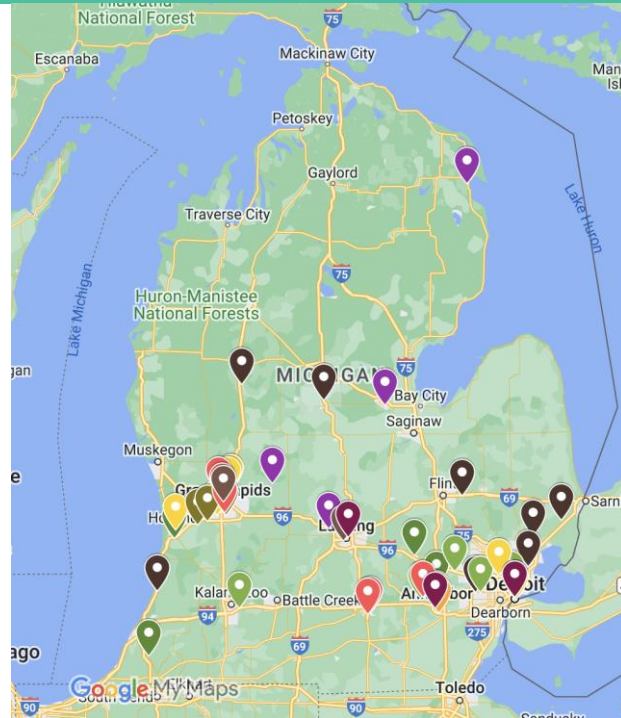
Source: C&I Geothermal Supplier Survey



Michigan Has Vibrant Geothermal Solar Supply Ecosystem

> 50 C&I GEOTHERMAL SUPPLIERS

- 5+ Manufacturers in Supply Chain
- 20+ Contractors
- 12+ Architecture & Engineering Firms
- 5+ Distributors
- 3+ Construction
- 3+ Drillers
- 3+ Financiers



GREATEST SUPPLIER NEEDS TO INCREASE C&I ADOPTION

More ...	Rank
■ Customers	1
■ Marketing	2
■ Qualified employees	3
■ Partners	3
■ Energy Industry Connections	4
■ Capital	6

Where “1” is Highest Rank

Source: C&I Geothermal Supplier Survey (n=27)



Geothermal Suppliers Need Trained Workforce

When asked, geothermal suppliers said:

- Having relevant certificates or degrees are important – 83%
- Michigan's lack of relevant workforce training hinders their ability to provide C&I solar – 33%
- Unaware of Michigan geothermal education and training resources – 83%

Source: C&I Geothermal Supplier Survey (n=23)

Michigan Institutions w/ Geothermal Courses

Dorsey College

Ferris State

Grand Rapids CC

Grand Valley State

Henry Ford CC

Jackson CC

Kirkland CC

Lansing CC

Macomb CC

MIAT College of Tech.

Michigan State University

Michigan Tech University

Mid-Michigan CC

Monroe CC

Mott CC

Oakland CC

Oakland University

University of Michigan

Washtenaw CC

Wayne County CC

Wayne State University

Western Michigan University

= **Institutions** C&I Geothermal Energy Forum suppliers said they have hired from



Threats To Michigan & Paths Forward

THREATS IF ADOPTION TOO LITTLE TOO LATE

- Michigan's C&I geothermal companies leave to pursue work in States that are taking off elsewhere ...New England, New York, New Jersey
- Michigan's grid stresses increases
 - Geothermal is grid-friendly as improved HVAC efficiencies creates flatter electrical load curves, especially in summer
- Michigan falls short of decarbonization goals
 - The C&I sector consumes about a third of Michigan's natural gas (US Energy Information Agency)
 - Michigan policies and utility Integrated Resource Plans (IRP) do not currently envision a role for geothermal

PATHS TO ACCELERATE ADOPTION

- Reduce Financial Hurdles
 - Better financing/grants/rebates
 - District scale loops and PPAs
 - Standardize geothermal contracts/models
- Increase & Enhance Geothermal Education/Marketing
 - State of Michigan
 - Building owners and occupants
 - Architects, engineers and contractors
 - Showcase Michigan C&I geothermal projects
- Make State Policies More Geo-Friendly
 - Require government and education to evaluate geothermal
 - Incentivize C&I firms with high heating+cooling needs
 - Incentivize C&I firms to decarbonize heating/cooling
 - Build geothermal readiness into commercial building codes
 - Simplify and standardize community permitting processes



More Michigan C&I Solar & Geothermal → More Jobs

Number of New Hires If Your Firm's C&I Solar Sales Are 10 Times Greater Than Current Sales*

No new jobs	-
1-10 new jobs	14%
11-25 new jobs	7%
26-50 new jobs	7%
50-99 new jobs	42%
100+ new jobs	28%

* C&I Solar Energy Forum; n=14

Number of New Jobs If Your Firm's C&I Geothermal Sales Are 10 Times Greater Than Current Sales*

No new jobs	-
1-10 new jobs	55%
11-25 new jobs	11%
26-50 new jobs	34%
50-99 new jobs	- %
100+ new jobs	- %

* C&I Geothermal Adoption Forum; n=9

More C&I Solar → More Jobs

With more than 40 C&I installers alone in Michigan ... growing C&I solar demand by 10x will add thousands of new jobs.

More C&I Geothermal → More Jobs

With more than 50 Michigan firms involved with C&I geothermal ... growing C&I geothermal demand by 10x would add hundreds more jobs.



C&I Adoption of Wind Energy





Michigan C&I Wind Energy Options Are Limited

THREE PATHS FOR C&I WIND ADOPTION

- Specialized utility renewable energy programs for C&I.
 - DTE's *MiGreenPower*
 - Consumers Energy's *Business Renewable Energy Program*
 - **But** as these Michigan utility RE programs grow, they are adding new solar to their portfolios, not wind
- Purchasing wind power from licensed Alternative Electric Suppliers that provide wind power in their mix (if in Choice Market)
- Purchasing Renewable Energy Credits (RECs) from out-of-state generators

DISTRIBUTED C&I WIND ENERGY?

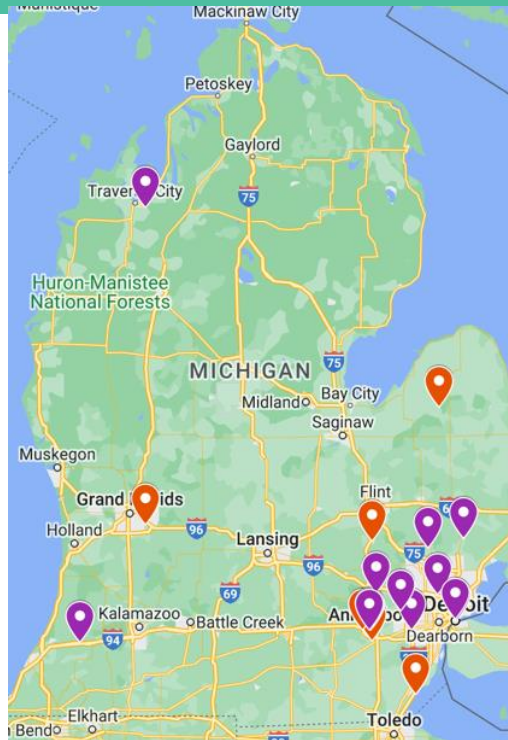
- Michigan's C&I distributed wind market is undeveloped
- Nationally, distributed C&I wind market is very small - but is starting to grow.
- Nation's largest developer of distributed C&I wind projects is ONE Energy, based in Findlay, OH)
 - Targets delivering wind power for ~6¢/kW
- Other manufacturers of smaller distributed wind turbines for C&I market include:
 - Bergey Windpower (Oklahoma) - 10kW and 15kW
 - Eocycle Technologies (Canada) - 25kW and 100 kW
- Arbor Wind (Ann Arbor) is marketing a 35kW vertical axis turbine has a 100kW turbine in design



Michigan Has A Solid Wind Supply Chain and Ecosystem

> 20 WIND SUPPLIERS

- 7+ Manufacturers in Supply Chain
- 2+ Installers
- 3+ Engineering
- 2+ Financiers
- 2+ Electrical Contractors
- 2+ Construction companies
- 1+ Inspection
- 1+ Maintenance



MICHIGAN C&I STANDOUTS

- Ventower Industries (Monroe, MI).
 - Largest wind tower manufacturer in Midwest.
 - Supply wind turbine towers all over U.S. and even internationally.
 - ~ 5% (and growing) of its towers are for on-site C&I wind energy
- SkySpecs (Ann Arbor, MI)
 - Nation's leading inspector of utility-scale wind turbine blades.
 - Blade inspection operations in over 30 countries.
- Arbor Wind (Ann Arbor, MI).
 - 35kW vertical axis wind turbine for commercial and agricultural applications.
 - Designing a 100kW unit



Michigan Wind Workforce Training & Education

Delta College
Kellogg CC
Macomb CC
MIAT College of Tech.
Monroe CC
Mott CC
Muskegon CC
Northwestern Michigan College
Wayne State University



Impediments and Paths Forward

TOP C&I WIND IMPEDIMENTS

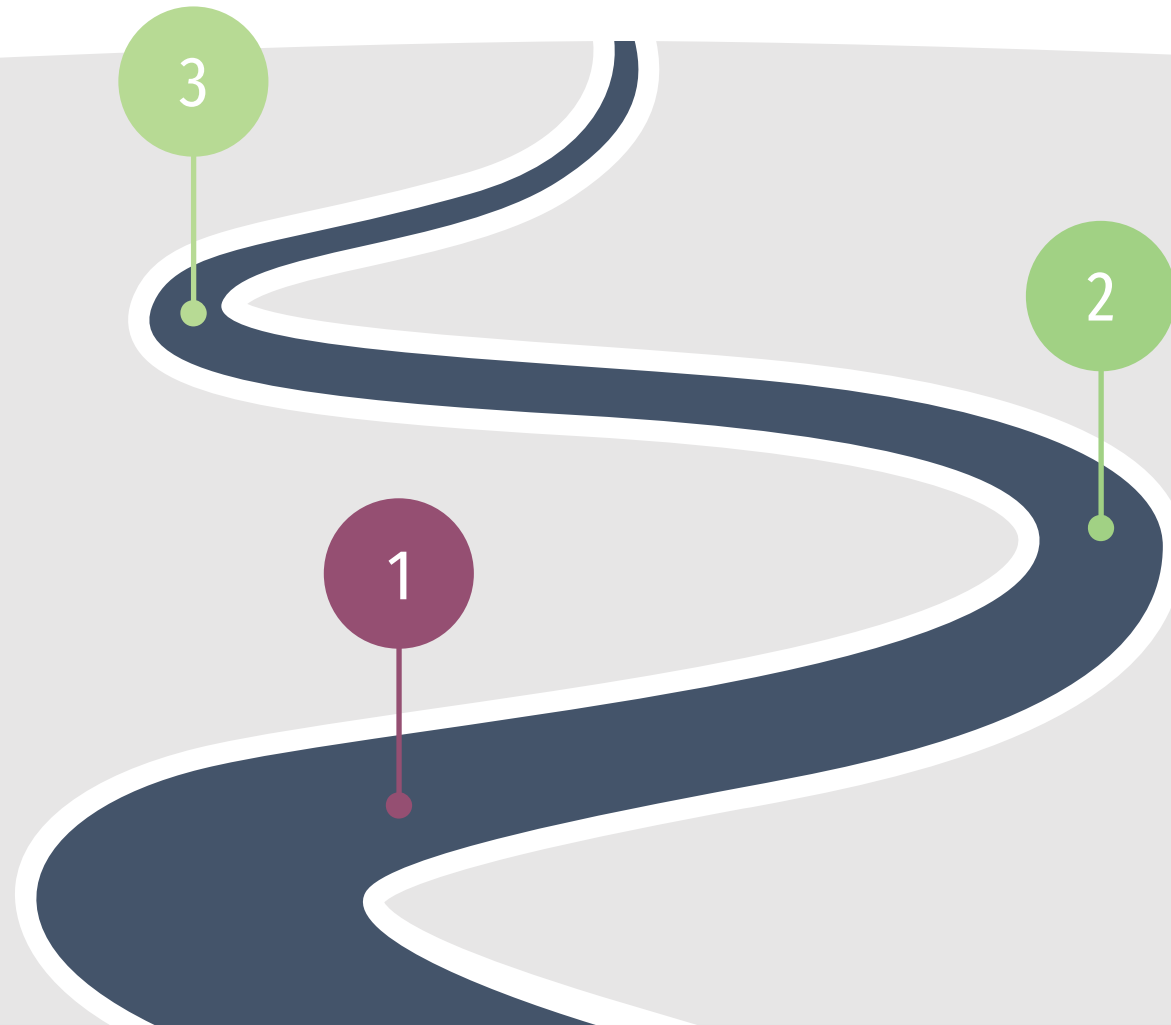
- Grass roots opposition to large-scale wind projects
- Michigan's Tall Structures Act (Act 259)
- Lack of state-wide zoning requirements and guidance for large wind turbines
- Larger wind turbines, appropriate for larger C&I operations, do not qualify under utility distributed generation programs
 - Extends interconnection study time and raises costs
 - Lowers ROI

PATHS TO ACCELERATE ADOPTION

- Advocate and promote C&I wind energy
- Facilitate distributed wind at large C&I facilities
 - Identify candidates and encourage consideration
- Adopt C&I scale interconnection and siting best practices
 - Encourage best interconnection practices to reduce study costs and wait-times.
 - Educate Michigan communities about wind energy and encourage local communities to adopt siting and permitting best practices.
- Fund research, development, and deployment (RD&D)
 - Accelerate C&I wind system innovation
 - Help offset costs for 3rd party testing and certifications



C&I RE Roadmap Recommendations





RE C&I Roadmap Recommendations To Accelerate RE C&I Adoptions

- Integrate C&I RE into MI Healthy Climate Planning
- Help Michigan Decision-makers Accelerate C&I RE Favorable Policies & Practices
- Promote C&I RE Awareness, Best Practices, and Industry Success
- Lower RE Adoption Costs
- Accelerate C&I RE Innovation



Integrate C&I RE into MI Healthy Climate Planning

- Recognize the ***critical*** role of C&I RE adoption to reaching MI Healthy Climate Plan
 - MI Healthy Climate Plan Goals include:
 - 60% of electricity by 2030 be renewable
 - Reducing emissions from heating of homes and businesses by 17% by 2030
 - Model and roadmap the rapid and substantial C&I RE scale up needed to hit carbon goals
 - Michigan C&I organizations consume nearly 60% of state's electricity usage
 - Include C&I RE's significantly positive job impacts, and workforce needs
 - Incorporate accompanying supply chain requirements
 - Assess additional opportunities to scale up new solar, geothermal and wind system installation and manufacturing in Michigan
 - Support workforce development programs, especially RE installation, operations and maintenance certified training



Help Michigan Decision-Makers Acceleration C&I RE Favorable Policies & Practices

- Encourage state offices to advocate for RE adoption by Michigan's C&I market
- Convene a C&I RE Advisory Board of industry experts to provide feedback about and guidance on policies and practices to accelerate C&I RE adoption in Michigan
- Help the Michigan Public Service Commission and legislature assess and improve regulations, policies, and practices to accelerate C&I RE adoption



Promote C&I RE Awareness, Best Practices, and Industry Success

- Track C&I RE installs, job creation, local manufacturing - highlight success stories
- Sponsor a state-wide annual C&I RE industry conference
- Co-sponsor private-public convenings to:
 - Connect C&I and RE industries with EGLE and other government agencies
 - Promote and accelerate C&I RE best practices
- Share leading C&I RE workforce development programs and best-practices
- Support programs that provide C&I customers with energy efficiency and emission reduction assessments and recommendations for implementation projects
 - Focus programs on small to medium sized manufacturers
 - RESTART <https://www.restartmi.org/>
 - MSU Industrial Assessment Center <https://iac.msu.edu/>



Lower RE Costs for Michigan C&I Customers

- Review/share market financing best practices in leading RE states
- Facilitate and expand funding options for C&I firms to purchase RE solutions
 - Help industry take full advantage of funding and benefits from IIJA, IRA, & CHIPS
 - Extend to electrification and low carbon fuel technologies
- Increase financial incentives for C&I RE projects that:
 - Utilize Michigan RE equipment content and suppliers
 - Locate in underserved/distressed/rural communities



Inflation Reduction Act

Stacking Value of the Investment Tax Credit for Projects Under 5 MW

Value Stack Components	ITC Components	Potential ITC Value*	Details
	Low-Income Community Bonus**	10-20%	For projects under 5 MW, 10% bonus for projects located in a low-income community, on Indian land, or multi-family housing. 20% bonus for projects that provide at least 50% of financial benefit to low-income persons (ex: community solar). Capped at 1.8 GW annually in 2023-2024.
	Energy Community Bonus**	10%	10% bonus for projects in energy communities, such as brownfield sites, former coal and current oil and gas communities.
	Domestic Content Bonus**	10%	10% bonus for using steel, iron or products made in the U.S. Starts at 20% of materials for offshore wind and 40% for all other facilities.
	Prevailing Wages/ Apprenticeship	24%	24% for taxpayers that pay prevailing wages and use registered apprenticeship programs. Any laborers and mechanics must be paid prevailing wages during construction, and for 5 years after the project is placed in service. Not required for projects < 1 MW AC to qualify for full value.
	Base rate	6%	6% base rate
Minimum ITC Value:		6%	
Maximum ITC Value:		70%	



Accelerate C&I RE Innovation and Application RD&D

- Review and evaluate Federal RE roadmaps to increase alignment of National and Michigan R&D priorities
- Inventory RE innovative companies and solutions
 - Both commercialized and close to market
- Identify industries that are best targets for C&I RE
- Provide funding to accelerate RE C&I innovation
 - Grants for R&D
 - Provide match for Federal dollars
- Encourage collaboration with universities and national labs
- Provide technical assistance to accelerate C&I user acceptance and deployment



Additional Resources



State Resources

Small Manufacturers Retooling



The Michigan Department of Environment, Great Lakes, and Energy (EGLE) Energy Services is offering matching grants for implementation of process improvements in small manufacturing companies that will improve their process efficiency and drive down the cost per unit produced.

Eligibility Requirements

Any manufacturer located in Michigan with five hundred (500) or fewer employees worldwide is eligible to apply. Applicant must be in good standing with the State of Michigan.

Funding Amount

A minimum of \$75,000 in funding is expected to be available for the program. All grant agreements require a minimum 100% match. The maximum funding amount is \$25,000 per applicant. EGLE reserves the right to issue awards/award amounts reflecting program priorities. Expenditures incurred outside the executed grant agreement time period are ineligible. All applicants must provide a minimum 100% percent (1:1) match of the total requested grant funds (a.k.a “State share”).

Program Priorities

- Manufacturers with significantly less than 500 employees worldwide
- Improvements to the onsite manufacturing process
- Utilizing state, federal, and utility energy assistance programs
- Adoption of continuous improvement programs or practices
- Adoption of innovative or cutting-edge technology
- Activities with significant environmental and economic benefits
- High value success stories of interest to many other manufacturers in Michigan



State Resources



The RESTART Program @ LTU

The RESTART Program - Retired Engineers, Scientists, Technicians, Administrators, Researchers, and Teachers provides free energy, waste reduction and sustainability assessments to any Michigan small to medium-sized commercial business and public institution of any size.

Michigan businesses and public entities can apply here

<https://forms.monday.com/forms/embed/70d98ecf2e9bd52d67e0c9e925dae3fa?r=use1>

www.restartmi.org/





Federal Resources

MICHIGAN STATE UNIVERSITY

MSU Industrial Assessment Center

<http://iac.msu.edu>

MSU's Industrial Assessment Center (IAC) helps small and medium sized US manufacturers and commercial buildings **save energy, improve productivity, and reduce waste** by providing **no-cost** technical assessments conducted by a team of students and faculty.

QUALIFICATIONS:

- Annual energy bills: 100K to \$3.5 million
- Annual sales: less than \$100 million
- Less than 500 employees/plant
- No in-house energy professional on staff
- Within Standard Industrial Codes (SIC) 20-39
- Industrial Facilities of 100,000 sq ft or less

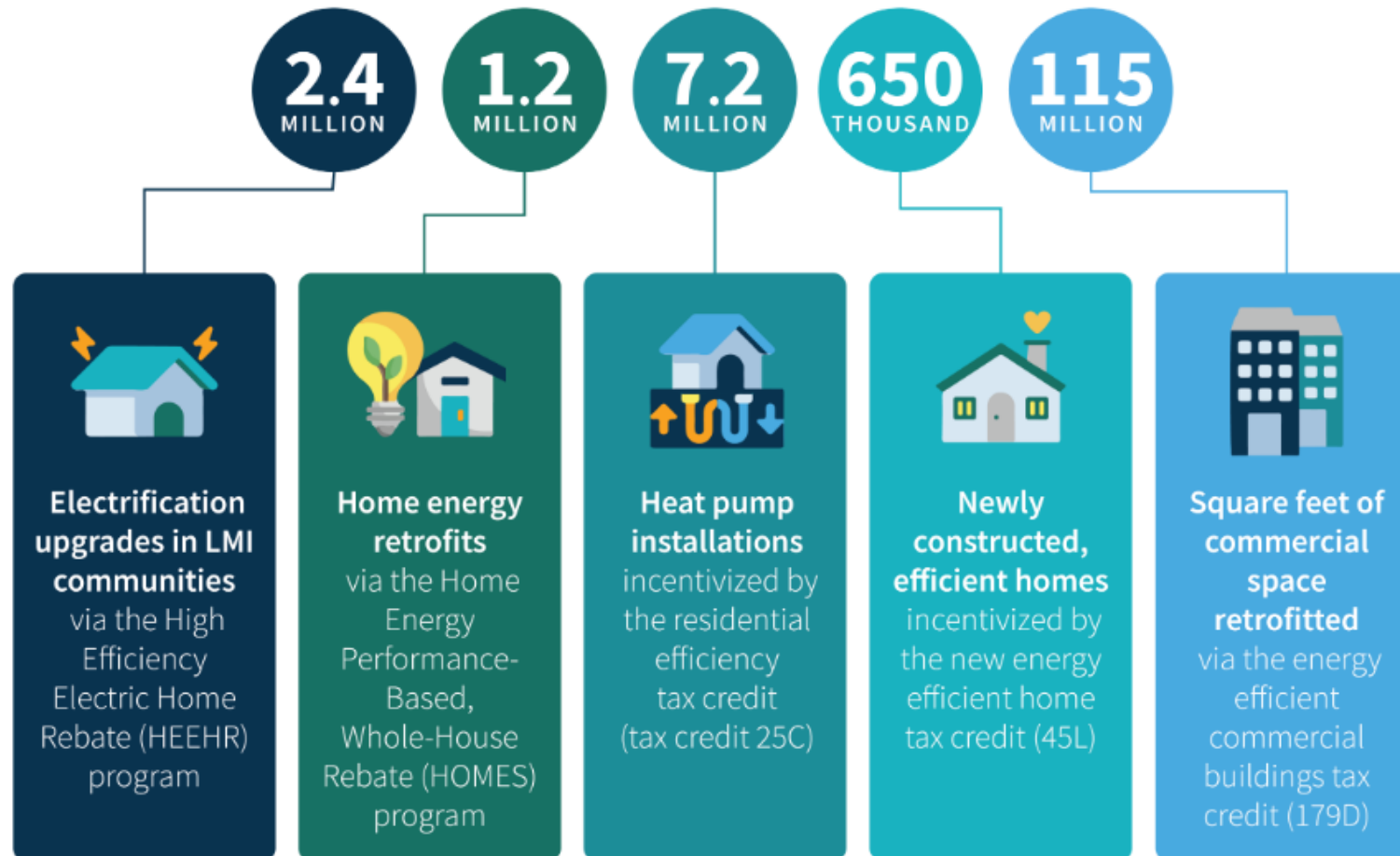
Apply for an Assessment

https://msu.co1.qualtrics.com/jfe/form/SV_1NvD5GVNBTPoZAq



Inflation Reduction Act

The IRA could transform the buildings sector:





Next Webinar

Clean Energy Technology Adoption within Michigan's Manufacturing Sector

This is a “Demand” side analysis from the perspective of manufacturers on adopting renewable energy and other decarbonization efforts, sponsored by EGLE and led by the University of Michigan’ Economic Growth Institute in partnership with the Centrepolis Accelerator at LTU

Mar 2 | 11:00a.m.

WEBINAR

Addressing industrial carbon emissions is essential in meeting Michigan’s greenhouse gas emission reductions obligation under the United State Climate Alliance (i.e., Executive Directive 2019-12) to avoid the many challenges posed by climate change.

This webinar will outline the clean energy technology adoption roadmap and value chain, specifically focusing on manufacturers’ adoption post-meter in two areas: energy production and energy efficiency. Hosted by [EGLE](#). Register [here](#).

QUESTIONS & THANK YOU!

Access full reports on the EGLE website

<https://www.michigan.gov/egle/about/organization/materials-management/energy/industry/clean-energy-assets>

Funding Opportunities & Assets Reports

Visit Energy Services Webpage

- <https://www.michigan.gov/egle/about/organization/materials-management/energy/rfps-loans>

Full Roadmap Reports & This Webinar Recording

- <https://www.michigan.gov/egle/about/organization/materials-management/energy/industry/clean-energy-assets>

Upcoming Webinars & Events

- **March 2, 11-12 PM**
Clean Energy Technology Adoption within Michigan's Manufacturing Sector
- **April 11-12, 2023**
MI Healthy Climate Conference
At Huntington Place in Detroit
- **October 24-25, 2023 - Save the date!**
Michigan Sustainability Conference (MiSCON)
At Treetops Resort in Gaylord