



Empowering Communities through Energy Storage & the MI Solar Access Program

Housekeeping







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MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY



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Catalyst Communities

Resources to aid communities with their decarbonization efforts



https://www.michigan.gov/egle/outreach/catalyst-communities



Michigan Green Communities

Resources for benchmarking and tracking sustainability progress



https://migreencommunities.com/



Today's Speakers

- John Freeman, Executive Director, GLREA
- Lisa Thomas, Environmental Engineer Specialist, EGLE



Michigan Solar Communities Guidebook

Energy Storage and MI Solar Communities Guidebook

March 27, 2024





GLREA

The Great Lakes Renewable Energy Association (GLREA) is a nonprofit organization of solar energy advocates who support the expansion and adoption of renewable energy in Michigan.

- GLREA's mission is to educate and enable homeowners, farmers, and businesses to save money and protect our environment by installing a renewable energy system and to establish policies that support the expansion of renewable energy in Michigan.
- Become a member or learn more by visiting GLREA.org

Michigan Solar Communities Guidebook

- A Practical Guide for Local Units of Government and Renewable Energy Advocates
 - **Purpose**: To help Local Units of Government, Organizations and Individuals learn about solar and geothermal energy, and be able to support the deployment of it.
 - **Recognition**:
 - The transition from fossil fuels to renewable energy is underway. There is the need of having a Guidebook so people can learn about it, quickly.
 - Many Local Units of Government are developing **Sustainability Plans** and renewable energy plays a critical role in the implementation of these plans.
 - GLREA and the State of Michigan want to help and support Local Units of Government deploy renewable energy.



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Electrical Energy Storage

Why is Electricity Unique?

- Up until now, the unique feature of electricity is that once generated, it must be immediately deployed.
- The utilities therefore had to balance the production of electricity with the demand for it.
- Whereas with over-production of gasoline or natural gas, this energy can be stored.
- Now, technology has caught up and electricity can be stored.





Types of Energy Storage

- Ludington Pump Storage: extra electricity is used to pump water uphill through pipes to a reservoir, and then when electricity is needed, the water rushes down hill through pipes and is run through a turbine creating electricity.
- It is owned jointly by Consumers Energy and DTE. This is utility scale storage. 'World's largest battery'
- But not viewed as feasible to do more of these types of energy storage; too expensive.





Types of Energy Storage

Batteries are now viewed as the most effective means of electrical energy storage, for both small and large scale.

- **Lead-Acid:** been around for long time; are effective for starting a car, inexpensive, but can't store that much electricity, limited charging cycles, eco-unfriendly, big-bulky.
- Lithium-lon: it's the go to battery now; high energy density, 4-6 hours of life, longer cycle and calendar life and price has come down even as energy density has increased. But can overheat and catch on fire.





Benefits of Electrical Storage

More Versatile and Can Increase Resilience

- Electricity can be generated and then stored for use later on. For solar users, the extra electricity generated by solar during the day can be stored and used at night, when solar is no longer producing.
 Storage therefore has the ability to preserve and move solar & wind electricity through **time**.
- Addresses the big weakness of Solar and Wind, that it is intermittent power. By adding a storage component, it can store electricity until its needed when the sun isn't shining or wind is not blowing.
- It helps with decarbonization efforts, because we now don't need as much 'base-line' power.





Benefits of Electrical Storage

Works hand n' hand with Solar and Wind Generated Electricity

- Storage of electricity reduces the pressure on utilities from generating power that closely matches the demand for power.
- Utilities can build large energy storage systems, store energy and release the energy during peak demand times when, for instance, air conditioning is in high use, rather than bringing on old dirty expensive plants.
- Storage can increase resilience and reduce power outages to your home, business or community.
- If coupled with a Micro-grid, and the overall grid goes down, the Micro-grid can decouple and be powered through battery storage electricity. Examples include hospitals, police and fire stations.

Economics of Energy Storage

- Battery storage will add cost to your home solar system.
- The 30% Federal Investment Tax Credit applies to purchasing and installing battery storage. Examples:
- Tesla:
 - Cost is \$1,065 per kilowatt-hour (kwh)
 - Standard size 13.5 kwh
 - Cost with ITC is about \$9,878
- Enphase:
 - O Cost is \$1,400 per kwh
 - O Standard size is 10.8 kwh
 - Cost with ITC is about \$10,064





Developments With Utility Scale Storage

- Public Act 235, enacted last November, requires regulated utilities to submit a plan by Dec 31, 2029 to construct or acquire energy storage systems or enter into contract, a combined capacity of 2,500 megawatts of energy storage.
- Within 1 year of the effective date of this Act (Feb 27, 2024) the MPSC shall complete a study on long-term and multi-day energy storage systems.
- DTE received approval on March 15, 2024 from MPSC to build 220 mega-watt/800 mega-watt hour lithium iron-phosphate battery energy storage system at a cost of \$460 million to be located at the former site of Trenton Channel power plant, that was recently demolished.





Conclusion

- Energy storage combined with solar or wind energy offers a very compelling alternative to fossil fuel generated electricity.
- The key benefits are:
 - **Resilience**: Battery storage can provide power to critical facilities during a power outage to serve critical needs of the community like police stations, fire stations, and hospitals.
 - **Expansion Renewable Energy**: Energy storage takes solar and wind electricity and moves it through time to be used later in the day or evening.
 - **Saving of Money**: It can save money for homeowners by not having to buy expensive utility electricity, and it saves utilities money by not having to bring on expensive 'peaker-power' plants during periods of high demand.
- The cost of energy storage continues to decrease as demand grows along with technological improvements.





Questions?

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MI Solar Access Program

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MI Solar Access Program

- MI Solar Communities Platform
- Financial Assistance Available for:
 - MI Community Shared Solar
 - MI Solarize
 - MI Energy Storage System

Eligibility

- Applicants must be physically located in Michigan's cooperative or municipal electric utility territory and one of the following:
 - Cooperative Utility
 - Municipal Utility
 - Local or Tribal government
 - Non-profit Organization
 - Small- to Medium- Sized Business



Application



Program Summary

The MI Solar Access Program (SAP) allows applicants to provide solar energy access to low-income households. Moreover, MI SAP can be used to fund 1) MI community shared solar project, 2) MI Solarize project or 3) MI Energy Storage System.

Eligibility Requirements

Applicants must be physically located in Michigan's cooperative or municipal electric utility territory and one of the following: - Cooperative Utility - Municipal Utility - Local or Tribal government - Non-profit Organization - Small- to Medium- Sized Business *Other interested applicants must be physically located in Michigan and the project serving in Michigan's cooperative or municipal electric utility territory.

- Online Application
- Up to \$100,000 per applicant

Award Process



MI Community Shared Solar

What's in a Community Shared Solar?

- Local Electric Utility Host
- Local Community Action Agency
- Education & Engagement Sessions
- Subscribers



Information to Obtain for Application

- Number of Households Enrolled
- Number of Years Solar Block Leased For
- □ Number of Solar Blocks per Household
- Solar System Size (kW)
- Annual Cost Savings (\$/year)
- Annual Electricity Savings (kWh/year)
- Annual Natural Gas Savings (ccf/year)
- Average Solar Credit (\$/month)



Examples - MI Community Shared Solar



Source: Low-Income Energy Affordability Data (LEAD) Tool https://www.energy.gov/eere/slsc/maps/lead-tool

- Cherryland Electric Cooperative
- Village of L'Anse
- Capital Area Community Services



MI Solarize

What's MI Solarize?

- Group Buy of Solar Energy
- Host Creates Interested Group
- GLREA's Solarize Toolkit
- Solarize Event on April 1
- Example Ann Arbor Solarize



Information to Obtain for Application

- Number of Households Enrolled
- □ Solar System Size (kW)
- Number of Solar Panels Purchased for One Rooftop
- Annual Cost Savings (\$/year)
- Annual Electricity Savings (kWh/year)
- Annual Natural Gas Savings (ccf/year)
- Average Solar Credit (\$/month)



MI Energy Storage System





QUESTIONS?

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Upcoming Events & Webinars

- April 1st, 6:00-7:30 PM Solarize Meridian Township
- April 10th, 11:00-12:00 PM
 <u>Climate and Health Adaptation Planning: A Health in All</u>
 <u>Policies Approach, Part 3 of a 3 Part Series</u>



Upcoming Events & Webinars

- April 4th, 9th, 11th, 16th, 22nd, 24th Home Energy Rebate Listening Sessions
- May 16th 17th
 <u>MI Healthy Climate Conference 2024</u>

