Michigan's Path to Advanced Energy Economy Hinges on Eliminating Barriers, Implementing Action Plan

Reducing energy waste, modernizing electric generation, electric vehicles are key

Michigan has multiple opportunities to reap the economic benefits of a world transitioning from fossil-fuel based energy sources to advanced energy technologies that will power the century ahead, provided it can eliminate the barriers that stand in the way. Those barriers range from transactional and organizational issues to barriers that are economic and policy-based. That is among the findings outlined in **Barriers to Advanced Energy in Michigan**, a report by the Institute for Energy Innovation (IEI) funded by the C.S. Mott Foundation with support from The Energy Foundation.

The Barriers Report is the first comprehensive attempt to identify and catalog the many barriers that impede the adoption of advanced energy technologies and business models in Michigan.

"There are several factors driving change in the energy sector," said Dan Scripps, president of IEI and co-author of the report. "Those factors range from a dramatic reduction in the cost of renewable energy and the effects of climate change resulting from fossil fuels, to the increasing consumer demand for greater control over their energy options and costs.

"As the path to an advanced energy economy becomes clearer, the barriers that stand in our way are becoming more apparent, too." Scripps added. "Identifying those barriers, understanding why they exist, and determining how they relate to one another will help policymakers, communities, business leaders, and investors develop strategies to bring them down and move Michigan forward."

Those barriers include:

Transactional barriers: Includes a lack of uniformity in permitting and interconnection and limited use of business models that could accelerate deployment.

Organizational barriers: Includes overcoming corporate separation between energy managers and financial operations managers, as well as challenges in integrating advanced energy within organizational processes.

Economic barriers: Includes disincentives for new technologies and business models, differences in tax treatment between different technologies, access to capital, and lack of financing for improvements requiring significant up-front capital outlays.

Utility barriers: Includes utility business models, rate and tariff design, and regulatory considerations that limit options available to regulated utilities.

Policy barriers: Includes statutory limitations on deployment, uncertainty about future requirements, and definitional issues that fail to consider emerging technologies.

Technology barriers: Includes gaps between the current state of technology and what's necessary to be cost competitive.

Network, communication, and educational barriers: Includes a lack of data availability to assist in the development of new business models and limited awareness among the public around the benefits of advanced energy deployment.

"Michigan's legacy in advanced manufacturing, engineering, and materials science, our world class universities, colleges and research facilities, our skilled labor force and M-Tech training facilities position Michigan to be a leader in producing and deploying the advanced energy technologies that global markets are demanding," said Stanley "Skip" Pruss, a principal of 5 Lakes Energy, which collaborated on the report. "Failure to act means surrendering opportunities to other states and nations and slowing the pace of needed change."

In addition to identifying barriers, the report offers a three-objective action plan with recommendations designed to move Michigan to an advanced energy economy including:

Reducing Energy Waste. It is estimated that 59 percent of primary energy consumed is wasted. Among the recommendations to reduce energy waste:

- Increase Michigan's natural gas and electric energy optimization standard, and eliminate the cap on utility expenditures for energy optimization programs.

- Recognize demand response and energy efficiency as energy system resources, allowing full participation in energy markets.

- Expand financing options for energy upgrades, including Property Assessed Clean Energy (PACE), on-bill financing (OBF) and on-bill repayment (OBR) programs, revolving loan funds, credit enhancements, performance contracting, and other tools.

Modernizing Electric Generation and Delivery. Michigan spends $22.6 billion annually on energy imports. Recommendations to reduce this expenditure include:

- Increasing Michigan's renewable portfolio standard, setting new medium-term and long-term targets for advanced energy at levels equal to leading states.

- Establishing a comprehensive, adaptive process for forecasting Michigan's future electric demand and assessing electric generation technologies taking into account capital, operating and fuel costs, environmental concerns, anticipated regulations, and the adoption of distributed energy resources by utilities and end users.

- Allowing distributed energy resources to compete head-to-head with conventional resources; create a level playing field for all energy resources and energy services by limiting fees and charges associated with interconnection, standby services, load firming, and other administrative costs

- Enabling individuals, businesses and industries that want a greater share of their energy from renewable energy sources to be able to do so.

Advanced Energy in the Transportation Sector. Electrifying transportation would fortify U.S. national and energy security while taking advantage of Michigan's strengths in the auto sector, providing opportunities for higher-skilled, better paying jobs in advanced manufacturing. Recommendations include:

- Policies and incentives that accelerate electric vehicle penetration and the availability of electric vehicle supply equipment (EVSE).

- Collaborations between Michigan automobile manufacturers, advanced energy storage companies, and universities and national laboratories to develop next generation energy storage technologies, control systems and power electronics for electric vehicles.

- Support for vehicle to grid (V2G) and vehicle to home (V2H) technologies to integrate electric vehicles into the smart-grid and to provide ancillary services and demand management capabilities.

Finally, the Barriers report highlights several examples of communities and organizations leading the way toward an advanced energy economy through strategies that can be replicated by others. Among the programs cited are:

- The Gratiot County Wind Farm
- West Michigan Battle of the Buildings
- Traverse City Chamber Energy Efficiency Loan Program
- Grand Rapids Community College Combined Heat & Power
- Oakland University Combined Heat & Power Initiative
- City of Battle Creek Energy Efficiency Program
- MPSC Energy Improvements Through PACE
- Houghton Energy Efficiency Team (HEET)
- Auburn Hills Electric Vehicle Ready Project
- Next Energy Smart Grid Collaboration

"Ultimately, deployment of advanced energy at scale is critical to our long-term prosperity and inter-generational equity, providing future generations with a livable, sustainable world," Scripps concluded. "Removing the roadblocks and clearing the pathway are the first steps."

The Barriers Report can be found at www.instituteforenergyinnovation.org or:
Barriers to Advanced Energy in Michigan

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The Institute for Energy Innovation is a Michigan-based not-for-profit organization. Its mission is to promote greater public understanding of advanced energy and its economic potential for Michigan, and encourage the public and policy discussion on Michigan's energy challenges and opportunities. The Institute for Energy Innovation provides independent research, conducts stakeholder and community engagement activities, organizes informational and networking events, and develops recommendations to spur public debate.

5 Lakes Energy is a Michigan-based policy consulting firm offering services in clean energy and the environment to the public and private sector, and providing strategic counsel on ways to enable and accelerate adoption of clean energy technologies and sustainable practices.

The C. S. Mott Foundation Environment program supports the efforts of an engaged citizenry working to create accountable and responsive institutions, sound public policies and appropriate models of development that protect the diversity and integrity of selected ecosystems in North America and around the world.

The Energy Foundation is a non-partisan organization dedicated to promoting the transition to a sustainable energy future by advancing energy efficiency and renewable energy. Its primary role is grant maker, supporting groups to build the new energy economy.