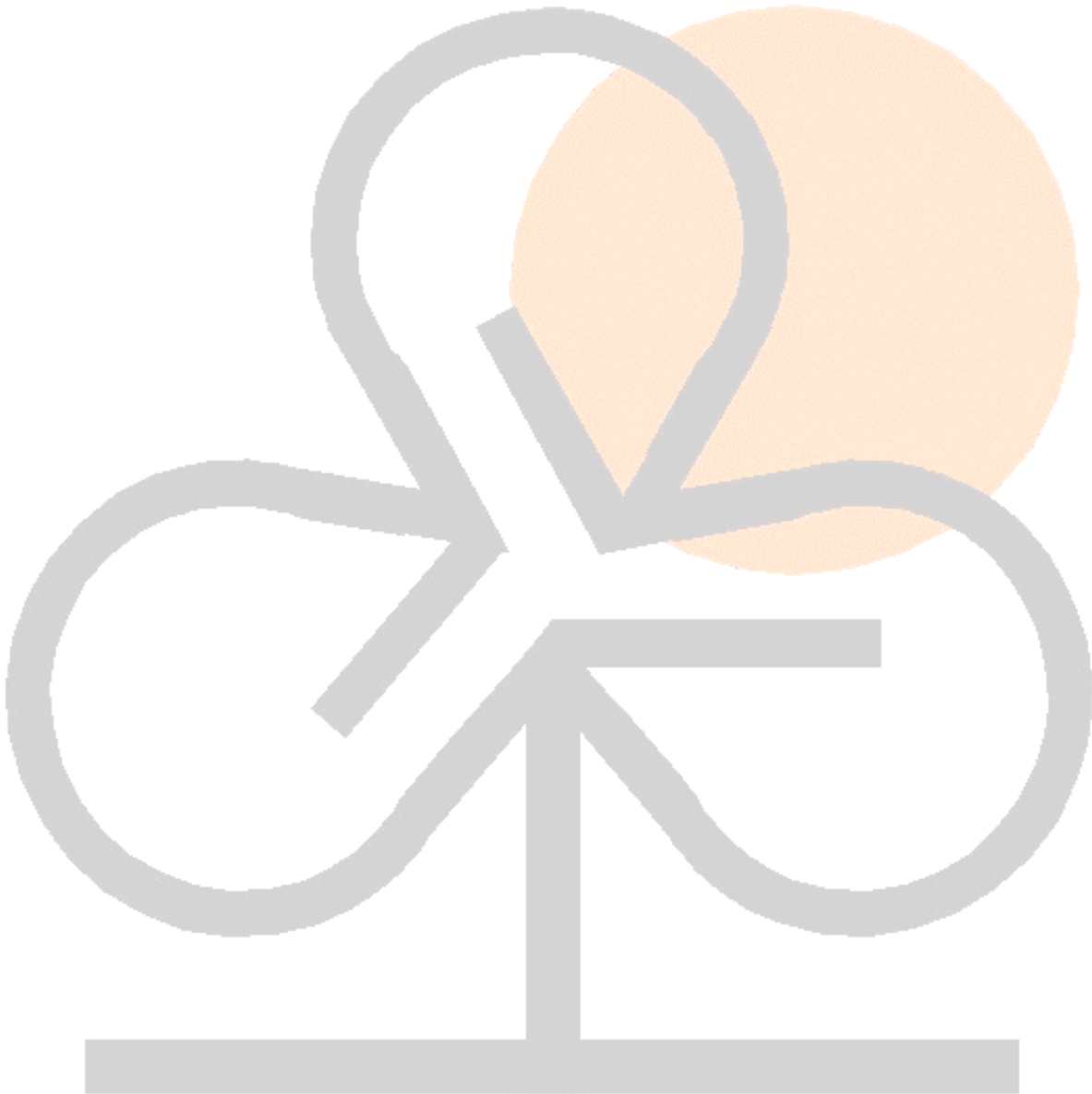


*The City of Ann Arbor's*  
**Energy Challenge Awards**  
*for Commercial Renewable Energy and Energy Efficiency*



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## Energy Challenge Awards Program

As part of the plan to meet the Ann Arbor Energy Challenge (see box), the Energy Commission has created the Energy Challenge Awards Program to **recognize community businesses that achieve a high standard of energy performance for their buildings**. These businesses will serve as examples to others of how energy efficiency and renewable energy can be incorporated into Ann Arbor buildings to reduce their overall energy needs, thereby reducing operating costs, global warming emissions and other pollution associated with energy use. Awards are offered in two categories: (1) Renewable Energy and (2) Energy Efficiency.

Winners will be recognized during an annual awards ceremony and receive a plaque that can be displayed in their building. The City will also publicize the winners and their accomplishments on its website at [www.a2gov.org/energy](http://www.a2gov.org/energy).

### Eligibility

The Energy Challenge Awards Program is open to commercial projects that promote energy efficiency and/or renewable energy in the City of Ann Arbor—including new construction, renovations, retrofits, and behavior change. (The Energy Commission encourages energy conservation through behavior change, which can create dramatic energy use reductions with little to no up-front cost.) Awards are offered only for projects completed in the last three years.

### Application Instructions

Completed applications for both the Renewable Energy and Energy Efficiency Awards (see attached) are due to the Ann Arbor Energy Office by **January 21, 2008**. Additional information is available online at [www.a2gov.org/energy](http://www.a2gov.org/energy)

### Privacy Policy

Complete application materials will be shared with award evaluators, and may be shared on a limited basis with other city staff. No information is made available to the general public, except as necessary to publicize winning entrants (project images, and information provided under *Project Overview* on award application) or to satisfy Freedom of Information requirements.

### Other Recognition Programs

Although some of the recommended techniques and strategies described in this document are adapted from the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) standards, this program is not intended as a substitute for green building certification. Energy Challenge Award applicants are encouraged to also consider applying for the appropriate LEED, Energy Star, Green Globes, Green Built, and/or alternative certifications. See [www.usgbc.com/LEED](http://www.usgbc.com/LEED), [www.energystar.gov](http://www.energystar.gov), [www.greenglobes.com](http://www.greenglobes.com), or [www.greenbuiltmichigan.org](http://www.greenbuiltmichigan.org) for more information on these programs.

### Ann Arbor Energy Challenge

In September 2005, Mayor Hieftje issued the Ann Arbor Energy Challenge, calling on the Energy Commission to investigate how Ann Arbor might use 20 percent renewable energy by 2010 for municipal operations and by 2015 for the whole community. The Energy Commission's research led Mayor Hieftje to raise the goal for municipal operations to 30 percent, and on May 1, 2006, City Council unanimously passed a resolution adopting the following goals:

- 30% renewable energy for municipal operations by 2010;
- 20% renewable energy by 2015 for the Ann Arbor community; and
- 20% reduction from 2000 greenhouse gas emission levels by 2015 for the Ann Arbor community.

As part of the program for meeting these challenging targets, the Energy Commission also conceived the 5,000 Solar Roofs Initiative, with the goal of achieving 5,000 solar installations in Ann Arbor by 2015. Council passed a resolution establishing the 5,000 Solar Roofs Initiative in July 2006.

# Renewable Energy Award

## Overview and Requirements

The purpose of the renewable energy award is to recognize the contribution of local businesses toward meeting Ann Arbor's Energy Challenge and 5,000 Solar Roofs goals.

There are two levels of recognition:

- Leaders: Obtain at least 50 percent of total energy used from renewable sources in Michigan
- Pioneers: Obtain at least 50 percent of total energy used from renewable sources in Michigan  
AND  
Demonstrate an exceptional commitment to renewable energy, including but not limited to the use of on-site renewables or an innovative renewable energy strategy

By expanding their use of on-site and other renewable energy resources, these businesses are reducing the environmental impacts of our energy use, promoting local and regional renewable energy development, and increasing awareness of the benefits of renewable energy.

## Eligible Resources:

- Eligible *off-site* renewable energy sources are new (constructed after 1997) Green-e certified renewable energy sources in Michigan. (Renewable energy purchased through DTE Energy's GreenCurrents(sm) program is eligible.)
- Eligible *on-site* renewable energy sources are new (constructed after 2004) solar thermal systems (including solar water heaters), solar photovoltaic systems, ground-source heat pumps, wind turbines, biomass energy and other technologies as approved by the Ann Arbor Energy Commission.

## Submittals

- Documentation of the business or building's total energy use (electricity, natural gas, and any others) from either one year of energy bills or a commissioning report.
- Documentation that demonstrates enrollment in a qualifying utility renewable energy program  
OR  
Copy of contract for purchase of Renewable Energy Certificates (RECs) generated from Michigan Energy Source  
AND/OR  
Documentation that on-site renewable energy system(s) are installed and operating properly (including annual renewable energy generation data or calculations).
- Letter pledging to continue purchasing renewable energy at the same or higher level and keep any installed renewable energy systems operable for at least seven years.

## Potential Technologies and Strategies

For on-site renewables, consider solar water heating and other solar thermal systems, photovoltaics, biomass and ground-source heat pumps, and low-velocity wind turbines. The Great Lakes Renewable Energy Association maintains a list of renewable energy installers on its website: [www.glrea.org](http://www.glrea.org).

For off-site renewables, enroll in DTE Energy's GreenCurrents(sm) program at [www.greencurrents.com](http://www.greencurrents.com) or purchase RECs from a Michigan-based renewable generation facility.

# Energy Efficiency Award

## Overview and Requirements

The purpose of the Energy Efficiency Award is to recognize leading energy conservation efforts in new construction, renovations, and retrofits in Ann Arbor in support of the Energy Challenge.

There are two levels of recognition:

- Leaders: Complete a fundamental commissioning of building energy systems (see EE-1, below)  
AND  
Reduce total energy use below the strictest applicable standard\* by 50 percent for new construction and 35 percent for renovations
  
- Pioneers: Complete a fundamental commissioning of building energy systems  
AND  
Reduce total energy use below the strictest applicable standard\* by 50 percent for new construction and 35 percent for renovations  
  
AND  
Demonstrate an exceptional commitment to energy efficiency, such as Enhanced Commissioning, Data Acquisition & Display, and/or Innovation in Energy Efficiency

*\* In the present absence of a stricter standard, ASHRAE Standard 90.1-2004 shall be used for commercial buildings. For residential buildings, the default standard shall be a HERS index of 100. In the event that a local, state, or national code exceeds these standards, the strictest applicable standard shall apply. Details on the DOE process for commercial energy code determination can be found at [www.energycodes.gov/implement/determinations\\_com.stm](http://www.energycodes.gov/implement/determinations_com.stm)*

## Submittals

- Summary commissioning report as described under EE-1 below or one year of energy bills before and after the project.
- For Pioneer applicants, as necessary to document the project's excellence.

## Potential Technologies and Strategies

Design the building envelope, HVAC, lighting, and other systems to maximize energy performance. Recommended strategies include Enhanced Commissioning (EE-2), Data Acquisition and Display (EE-3), and Innovation in Energy Conservation (EE-4), which are described in more detail below.

## EE-1: Fundamental Commissioning of the Building Energy Systems<sup>1</sup>

### **Intent**

Verify that the building's energy-related systems are installed, calibrated and perform according to the owner's project requirements, basis of design, and construction documents while developing the expertise of Michigan-based commissioning agents.

### **Benefits of Commissioning**

Benefits of commissioning include reduced energy use, lower operating costs, reduced contractor callbacks, better building documentation, improved occupant productivity, and verification that the systems perform in accordance with the owner's project requirements.

### **Requirements**

The following commissioning process activities shall be completed by the commissioning team, in accordance with the LEED-NC 2.2 Reference Guide.

- 1) Designate a Michigan-based<sup>2</sup> individual as the Commissioning Authority (CxA) to lead, review and oversee the completion of the commissioning process activities.
  - a) The CxA shall have documented commissioning authority experience in at least one building project.
  - b) The individual serving as the CxA shall be independent of the project's design and construction management, though they may be employees of the firms providing those services. The CxA may be a qualified employee or consultant of the Owner.
  - c) The CxA shall report results, findings and recommendations directly to the Owner.
  - d) For projects smaller than 50,000 gross square feet, the CxA may include qualified persons on the design or construction teams who have the required experience.
- 2) The Owner shall document the Owner's Project Requirements (OPR). The design team shall develop the Basis of Design (BOD). The CxA shall review these documents for clarity and completeness. The Owner and design team shall be responsible for updates to their respective documents.
- 3) Develop and incorporate commissioning requirements into the construction documents.
- 4) Develop and implement a commissioning plan.
- 5) Verify the installation and performance of the systems to be commissioned.
- 6) Complete a summary commissioning report.

### **Commissioned Systems**

Commissioning process activities shall be completed for the following energy-related systems, at a minimum:

- Heating, ventilating, air conditioning and refrigeration (HVAC&R) systems (mechanical and passive) and associated controls
- Lighting and daylighting controls
- Domestic hot water systems
- Renewable energy systems (wind, solar, etc.)
- Energy envelope/building shell

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<sup>1</sup> This section is adapted from the U.S. Green Building Council's LEED for New Construction (LEED-NC).

<sup>2</sup> Owner is highly encouraged, although not required, to select a Michigan-based CxA, because of their more in-depth knowledge of local climatic challenges and opportunities.

## Potential Technologies & Strategies

Owners are encouraged to seek out qualified individuals to lead the commissioning process. Qualified individuals are identified as those who possess a high level of experience in the following areas:

- Local climatic challenges and opportunities
- Energy systems design, installation and operation
- Commissioning planning and process management
- Hands-on field experience with energy systems performance, interaction, start-up, balancing, testing, troubleshooting, operation, and maintenance procedures
- Energy systems automation control knowledge

Owners are encouraged to consider including water-using systems, building envelope systems, and other systems in the scope of the commissioning plan as appropriate. The building envelope is an important component of a facility that impacts energy consumption, occupant comfort and indoor air quality.

The LEED-NC 2.2 Reference Guide<sup>3</sup> provides guidance on the rigor expected for the following:

- Owner's project requirements
- Basis of design
- Commissioning plan
- Commissioning specification
- Performance verification documentation
- Commissioning report

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<sup>3</sup> Information on obtaining a copy of the guide is available here: [www.usgbc.org/DisplayPage.aspx?CMSPageID=174](http://www.usgbc.org/DisplayPage.aspx?CMSPageID=174)

## EE-2: Enhanced Commissioning<sup>4</sup>

### Intent

Begin the commissioning process early during the design process and execute additional activities after systems performance verification is completed.

### Requirements

Implement, or have a contract in place to implement, the following additional commissioning process activities in addition to the requirements of EE-1:

1. Prior to the start of the construction documents phase, designate an independent Commissioning Authority (CxA) to lead, review, and oversee the completion of all commissioning process activities. The CxA shall, at a minimum, perform Tasks 2, 3 and 6. Other team members may perform Tasks 4 and 5.
  - a. The CxA shall have documented commissioning authority experiences in at least one building project.
  - b. The individual serving as the CxA shall be—
    - i. based in Michigan;<sup>5</sup>
    - ii. independent of the work of design and construction;
    - iii. not an employee of the design firm, though they may be contracted through them;
    - iv. not an employee of, or contracted through, a contractor or construction manager holding construction contracts; and
    - v. (can be) a qualified employee or consultant of the Owner.
  - c. The CxA shall report results, findings and recommendations directly to the Owner.
  - d. This requirement has no deviation for project size.
2. The CxA shall conduct, at a minimum, one commissioning design review of the Owner's Project Requirements (OPR), Basis of Design (BOD), and design documents prior to mid-construction documents phase and back-check the review comments in the subsequent design submission.
3. The CxA shall review contractor submittals applicable to systems being commissioned for compliance with the OPR and BOD. This review shall be concurrent with A/E reviews and submitted to the design team and the Owner.
4. **Develop a systems manual that provides future operating staff the information needed to understand and optimally operate the commissioned systems.**
5. Verify that the requirements for training operating personnel and building occupants are completed.
6. Assure the involvement by the CxA in reviewing building operation within 10 months after substantial completion with O&M staff and occupants. Include a plan for resolution of outstanding commissioning-related issues.

### Potential Technologies & Strategies

Although it is preferable that the CxA be contracted by the Owner, for the enhanced commissioning credit, the CxA may also be contracted through the design firms or construction management firms not holding construction contracts.

The LEED-NC 2.2 Reference Guide<sup>6</sup> provides detailed guidance on commissioning design review, commissioning submittal review, and the systems manual

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<sup>4</sup> This section is adapted from the U.S. Green Building Council's LEED for New Construction (LEED-NC).

<sup>5</sup> A Michigan-based CxA is recommended for a greater expertise in addressing local climatic conditions.

<sup>6</sup> Information on obtaining a copy of the guide is available here: [www.usgbc.org/DisplayPage.aspx?CMSPageID=174](http://www.usgbc.org/DisplayPage.aspx?CMSPageID=174)

## EE-3: Data Acquisition & Display

### **Intent**

Provide for ongoing accountability of building energy consumption over time and promote public awareness of the benefits of energy-efficient buildings.

### **Requirements**

Develop and implement a Data Acquisition & Display (DAD) Plan that will:

- Evaluate building and/or energy system performance
- Display relevant data to building users and visitors
- The DAD period shall cover a period of no less than one year of post-construction occupancy.

### **Potential Technologies & Strategies**

Develop a DAD Plan to evaluate building and/or energy system performance. Characterize the building and/or energy systems through energy simulation or engineering analysis. Install the necessary metering equipment to measure energy use. Track performance by comparing predicted performance to actual performance, broken down by component or system as appropriate.

Evaluate energy efficiency by comparing actual performance to baseline performance. While the IPMVP<sup>7</sup> describes specific actions for verifying savings associated with energy conservation measures (ECMs) and strategies, this component expands upon typical IPMVP measurement and verification objectives. DAD activities should not necessarily be confined to energy systems where ECMs or energy conservation strategies have been implemented. The IPMVP provides guidance on measurement and verification strategies and their appropriate applications for various situations. These strategies should be used in conjunction with monitoring, public display, and trend logging of significant energy systems to provide for the ongoing accountability of building energy performance.

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<sup>7</sup> IPMVP is the International Performance Measurement and Verification Protocol and is sponsored by the Efficiency Valuation Organization, which maintains a website at [www.evo-world.org/](http://www.evo-world.org/)

## EE-4: Innovation in Energy Conservation

### **Intent**

To provide design teams and projects an opportunity to be recognized for innovative approaches to building energy conservation.

### **Requirements**

In writing, identify the specific intent of the proposed innovation, the proposed requirement for compliance, the proposed submittals to demonstrate compliance, and the design approach (strategies) that might be used to meet the requirements.

### **Potential Technologies & Strategies**

Incorporate new or innovative techniques to further reduce building energy use.