

## *Presentation*

### **EPA Portfolio Manager as a Viable Management Tool for American Reinvestment and Recovery Act (ARRA) – Energy Efficiency and Conservation Block Grants**

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Director, Entrepreneurship & Commercialization  
Saginaw Valley State University**

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#### **Introduction**

This presentation concerns how the EPA ENERGY STAR and Portfolio Manager (PM) program can be used to support Michigan communities and their Energy Efficiency and Conservation Block Grant programs (See Attachment I). EPA Portfolio Manager is an online data management tool that helps track and measure a building's energy use. Portfolio Manager can calculate the energy intensity of a particular building while taking into account changes in weather. **Once a baseline is established, Portfolio Manager can calculate the percent energy use reduction to track related progress.** Whether participants own, manage, or hold properties for investment, Portfolio Manager can help **set investment priorities, identify under-performing buildings, verify efficiency improvements,** and receive EPA recognition for superior energy performance. **(Attachment II provides a comparison between EECBG Metrics and EPA ENERGY STAR Portfolio Manager).**

It is *very important* to note that data from PM only can be obtained from buildings that have had their building energy data entered into PM (either by them or a third-party)! It is also important to note that an ENERGY STAR Building designation can lead to a Leadership in Energy and Environmental Design Existing Building (LEED EB) designation if warranted. (See Attachment III for a discussion of the LEED program. For more information on EPA Portfolio Manager please see:

**[http://www.energystar.gov/index.cfm?c=evaluate\\_performance.bus\\_portfoliomanager](http://www.energystar.gov/index.cfm?c=evaluate_performance.bus_portfoliomanager)**

EPA Portfolio Manager can be specified in the EECBG Plans as **the** management tool for:

- Getting baseline energy use and GHG emissions inventory, and forecasting future energy use
- Setting goals/objectives for total energy use, emissions reductions, and energy efficiency increases(including deployment of renewable technologies)
- Developing actions/plans/strategies and an implementation schedule to meet goals
- Identifying the expected outcomes and benefits of the plan:
  - Energy saved
  - Renewable energy capacity
  - GHG emissions reduced
- Evaluation, monitoring and verification planning

In the main, communities have two choices for how to use the PM program:

1. Encourage individual building owners to work independently with PM (SEE: [http://www.energystar.gov/index.cfm?c=business.bus\\_internet\\_presentations](http://www.energystar.gov/index.cfm?c=business.bus_internet_presentations))
2. Organize sector-wide PM programs so that data can be tracked and verified on an aggregate basis for all those who participate in the PM program from individual sectors.

### **Michigan Sector PM Pilot Program**

A Sector PM Program is where communities work to organize sector-wide PM programs so that data can be tracked and verified on an aggregate basis for all those who participate in the PM program from individual sectors. A key benefit of a sector-wide program is the opportunity to lower the purchase price of energy efficient products with an Aggregated Purchasing program.

Under a grant from the U.S. EPA ENERGY STAR Congregations program, the Michigan Energy Office, and funding support from the Small Business Association of Michigan, such an aggregation program was piloted in Michigan with the Michigan Interfaith Power and Light, LLC (MiIPL). Father Charles E. Morris was the MiIPL project manager. In April 2008, MiIPL members participated in a web-ex introduction to ENERGY STAR Portfolio Manager Training for Congregations with Steve Bell of EPA. In March 2009, another PM training was conducted in Southeast Michigan in partnership with the Detroit Deices and the Detroit Edison Company. Since Portfolio Manager has the capability to track changes at the household level as well as facility level, MiIPL also partnered with Portfolio Manager and with the “Cool Congregations” program created by Iowa Interfaith Power & Light to facilitate the process of lowered carbon footprints among individual congregants in their homes.

The final report for this project presented the following outcome:

#### **TOTAL EMISSIONS REDUCTIONS TO DATE<sup>1</sup>**

<b>C02 (Global Warming)</b>	<b>17,354 Tons</b>
<b>S02 (Acid Rain)</b>	<b>86 Tons</b>
<b>Nox (Smog)</b>	<b>42 Tons</b>
<b>Particulates (Asthma/Heart Attack)</b>	<b>3,291 lbs.</b>
<b>Mercury (Cancer &amp; Birth Defects)</b>	<b>0.811 lbs.</b>
• This comes to lifecycle savings of nearly 20,000,000 kilowatt-hours (kWh) or \$2,427,265 on energy bills	
• This is the equivalent of planting 4,717 acres of forest or keeping 2445 cars off of the road for a year	

(Report available upon request from the Small Business Association of Michigan (800) 362 5461).

### **ENERGY STAR**

The ENERGY STAR program was created by the U.S. Department of Energy and U.S. Environmental Protection Agency to help consumers become aware of the ENERGY STAR concept and to promote the availability of ENERGY STAR products. ENERGY STAR helps consumers by providing an easily identified, third party verification of energy efficient products.

ENERGY STAR is a registered trademark that *indicates a product exceeds the minimum Federal*

<sup>1</sup> Michigan Interfaith Power and Light, LLC, July of 2004 and June of 2006 (lifecycle estimated offset).

energy use standards and/or uses less energy than similar products. ENERGY STAR products have high performance, long life and a low environmental impact, as well as money saving, through lower maintenance and utility costs over the life of the products. **Energy Star**® products include: *Appliances; Computers; Health Care; Manufacturing; Office Equipment; Restaurant/Food Services; buildings; and other products.*

The following is an example of **Energy Star**® products appropriate for large, medium and small **businesses, home-based businesses, individuals, schools, non-profit organizations, homeowners, and renters**

- **Energy Star® Rated Computers** - Power down when not in use. Laptops use even less energy than desktops. Energy Star® Rated Monitors have a large savings potential. Screen savers that are compatible with the monitor’s power management features. Annual Energy Star labeled Cost Savings: \$19.00. Percentage of Total Operating Cost: 49%.
- **Energy Star® Rated Printers** - Goes into sleep mode when not in use. Annual Energy Star labeled Cost Savings: \$39.00. Percentage of Total Operating Cost: 65%.
- **Energy Star® Rated Facsimile Machines** - Saves 50% energy by going into a sleep mode when not in use. Annual Energy Star labeled Cost Savings: \$13.00. Percentage of Total Operating Cost: 52%.
- **Energy Star® Rated Copiers** - 60% savings on electricity by turning off after a period of inactivity. Annual Energy Star labeled Cost Savings – Medium Copier: \$57.00, Large Copier: \$130.00. Percentage of Total Operating Cost - Medium Copier: 57%, Large Copier: 58%.
- **Energy Star® Lights** – Replacing twenty 100-watt incandescent bulbs used 24 hours a day in stairways with **Energy Star**® 30-watt compact fluorescent bulbs will save \$980 per year. The upgrade will cost \$400. The simple payback is \$400 divided into \$908 = 0.4 years, or under 5 months. This is equivalent to an over 200 percent return on investment (ROI).
- **Energy Star® High-efficiency heating and cooling (HVAC) equipment** can account for over 50 percent of a home's total energy use. A consumer can significantly lower utility bills by choosing equipment carefully.
- **Energy Star® Hot Water Heater** - The average homeowner spends \$200.00 per year on water heating. Energy Star rated Water Heaters can reduce this cost from \$200.00 to \$100.00 per year while also improving safety, quality and the value of the home.
- **Energy Star® Appliances** - Comparison of Energy Star® and non- **Energy Star**® Appliances

	Annual Energy Cost (1)	
	Non ES (2)	ES
<b>Refrigerators (18 – 20 C.F.) with Top Freezer</b>	\$63.00	\$50.00
<b>Dishwasher:</b>		
• <b>(Electric Hot Water)</b>	\$47.00	\$42.00
• <b>Gas Hot Water)</b>	\$26.00	\$24.00
<b>Clothes Washer:(3)</b>		
• <b>Electric Hot Water</b>	\$83.00	\$39.00
• <b>Gas Hot Water)</b>	\$32.00	\$17.00

1. Based on price of 8.6 cents per kWh for electricity or 60.0 cents per therm for natural gas.
2. Annual energy use for the Standard Model is sufficient to meet current federal appliance standards.
3. WhirlPool Corporation Energy Star - While not factored into the above calculation, the new Whirlpool Resource Saver and Calypso washers can save up to \$100 in annual water and energy costs. This does not account for added dry cleaning saving with the Calypso washer.

## **About Mark H. Clevey**

**Mark H. Clevey, MPA  
Director, Entrepreneurship & Commercialization  
Saginaw Valley State University  
mhclevey@svsu.edu**

1. Masters Degree in Public Administration
2. Experience in Local Government, Energy and Economic Development
3. Community Energy Management (CEM)
  - o Community Energy Manager, City of Kalamazoo
  - o CEM Consultant, City of Ann Arbor
  - o Managed Renewable Energy Demonstration Program, County of Muskegon
4. Co-Founder, Michigan Interfaith Power and Light, LLC.
5. Founding Board Member, Michigan Solar Energy Association
6. Director, State of Michigan, ENERGY STAR Promotion Program
7. Consultant and College Instructor in Alternative Energy & Green Entrepreneurship.
8. Industry Association experience in Alternative Energy and Energy Efficiency.
9. Grant Manager on Renewable/Energy Efficiency grants from DOL, EPA, DOEn, State of Michigan (MPSC, Energy Office, DNR).
10. SBIR Phase II Commercialization Plan Grant Reviewer for U.S. Departments of Agriculture and Energy, National Science Foundation and Environmental Protection Agency.
11. Independent Trainer, EPA Portfolio Manager Program



LEARN MORE AT  
energystar.gov

ENERGY STAR® is a U.S. Environmental Protection Agency program helping businesses and individuals fight global warming through superior energy efficiency.

## TRACK AND REPORT YOUR ENERGY IMPROVEMENTS IN 3 EASY STEPS AN OVERVIEW TO PORTFOLIO MANAGER - EPA'S NO-COST ONLINE ENERGY MANAGEMENT TOOL

Under the American Recovery and Reinvestment Act (ARRA) of 2009, state and local governments are receiving substantial funding to implement energy efficiency initiatives. With an average of 30 percent of the energy used in commercial buildings going to waste, existing buildings represent one of the best opportunities for immediate and cost-effective reductions in energy use and greenhouse gas emissions.

Energy used by commercial and industrial buildings in the United States is responsible for about \$200 billion in annual costs and creates nearly 50 percent of our national emissions of greenhouse gases that contribute to global climate change. State and local officials can leverage EPA's no-cost ENERGY STAR Portfolio Manager tool to assess the energy use of buildings to identify their best opportunities for improvement, track performance over time, and document savings results.

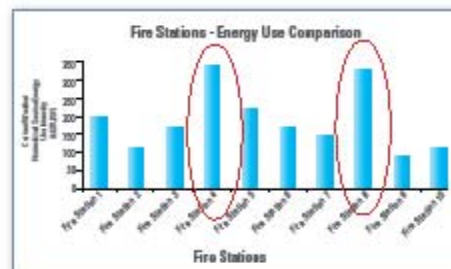
Visit [www.energystar.gov/benchmark](http://www.energystar.gov/benchmark) to get started using Portfolio Manager.

### 1. IDENTIFY ENERGY EFFICIENCY PROJECTS

Portfolio Manager is an interactive energy management tool that allows users to track and assess energy and water consumption in individual buildings—and across entire portfolios of buildings—in a secure online environment.

Portfolio Manager enables users to compare the energy use of similar buildings. Enter energy use data into the tool to:

- ✓ Identify under-performing buildings to target for energy efficiency improvements.
- ✓ Establish baselines to set goals and measure progress for energy efficiency improvement projects over time.



Prioritize efforts by identifying under-performing buildings.

### 2. TRACK PROGRESS OVER TIME

Portfolio Manager allows users to track key consumption, performance, and cost information during energy efficiency improvement projects. Use Portfolio Manager to:

- ✓ Monitor energy efficiency improvements compared to a baseline.
- ✓ Track reductions in greenhouse gas emissions.
- ✓ Monitor energy and water cost savings.

Facility Name	Energy Intensity (kWh/sq ft)	Change From Baseline (%)	Energy Cost per Sq Ft (\$/sq ft)
Fire Station 1	150	-12.5	\$0.30
Fire Station 2	120	-17.2	\$0.37

View and compare energy performance and GHG metrics.

### 3. VERIFY AND DOCUMENT RESULTS

Portfolio Manager can help users quickly document reductions in energy use, greenhouse gas emissions, water use, and costs for an individual building or an entire portfolio. This valuable information can be used to provide a level of transparency and accountability to help demonstrate strategic use of ARRA 2009 funding. With Portfolio Manager, you can:

- ✓ Generate a Statement of Energy Performance (SEP) for each building, summarizing important performance indicators, including energy use intensity and greenhouse gas emissions associated with building energy use.
- ✓ Download all performance metrics into Microsoft® Excel.
- ✓ Request an Energy Performance Report that shows reductions in key performance indicators over a user-specified time period.



### LEARN MORE AT ENERGYSTAR.GOV

EPA provides a variety of other resources to state and local government representatives to assist their efforts in fighting global warming. You can access a host of strategies and materials specifically designed to address your challenges at [www.energystar.gov/government](http://www.energystar.gov/government).

### USE PROVEN ENERGY MANAGEMENT STRATEGIES

Based on the successful best practices of ENERGY STAR partners, the ENERGY STAR Guidelines for Energy Management can assist you in improving your energy and financial performance while establishing your government as an environmental leader. Learn more at [www.energystar.gov/guidelines](http://www.energystar.gov/guidelines).

### PERFORM COST-EFFECTIVE BUILDING UPGRADES

Plan systematic building upgrades using the 5-stage approach in EPA's Building Upgrade Manual. This online handbook, available for download at [www.energystar.gov/bldgmanual](http://www.energystar.gov/bldgmanual), offers technical guidance for each stage, from commissioning to lighting and HVAC upgrades.

### COMMUNICATE SUCCESS AND PROMOTE ENERGY EFFICIENCY

Use the ENERGY STAR Challenge toolkit to help spread the energy efficiency word to others in your community. Find it and other resources at [www.energystar.gov/challenge](http://www.energystar.gov/challenge).

### RECOGNIZE RESULTS

Buildings that rate in the top 25 percent in the nation for energy efficiency may qualify for the ENERGY STAR. Learn more at [www.energystar.gov/eslabel](http://www.energystar.gov/eslabel).

## Attachment II

### EECBG Metrics and EPA ENERGY STAR Portfolio Manager

<u>EECBG Metrics</u>	<u>EPA ENERGY STAR &amp; Portfolio Manager</u>
<p>Building Codes and Standards</p> <ul style="list-style-type: none"> <li>• Name of new code adopted</li> <li>• Name of old code replaced</li> <li>• Number of new and existing buildings covered by new code</li> </ul>	<p>To qualify as an ENERGY STAR rated building, a building or manufacturing plant must score in the top 25 percent based on EPA's National Energy Performance Rating System.</p> <p>EPA compares energy use among other, similar types of facilities on a scale of 1-100. Buildings that achieve a score of 75 or higher may be eligible for the ENERGY STAR. Commercial buildings eligible to receive a rating, representing over 50 percent of US commercial floor space, are:</p> <p style="text-align: center;">                     Bank/Financial Institutions                      Courthouses                      Hospitals (acute care and children's)                      Hotels                      K-12 Schools                      Medical Offices                      Municipal Wastewater Treatment Plants                      Offices                      Residence Halls/Dormitories                      Retail Stores                      Supermarkets                      Warehouses (refrigerated and non-refrigerated)                 </p>
<p>Building Retrofits</p> <ul style="list-style-type: none"> <li>• Number of buildings retrofitted, by sector</li> <li>• Square footage of buildings retrofitted, by sector</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Sector Strategy</b> – Organize, train, and assist sectors (Industrial, Commercial, Residential, etc.) to use Portfolio Manager. PM serves as the <b>Verification and Tracking</b> Instrument.</li> </ul> <p>ENERGY STAR® benchmarking is changing the building industry's perception of energy performance. For commercial buildings, energy performance is rated on a <b>1-to-100 scale</b> where a score of <b>50 signifies energy performance better than 50 percent of similar buildings</b>. Buildings with benchmark scores of <b>75 or higher</b> are eligible for the ENERGY STAR® label for buildings to convey performance excellence to tenants, customers, and other occupants. Standards used in the ENERGY STAR benchmarking for buildings include the following:</p>

	<ul style="list-style-type: none"> <li>• Energy efficiency in the top 25 percent of similar existing buildings, as indicated by a minimum score of 75 out of 100 determined through the ENERGY STAR Portfolio Manager.</li> <li>• Thermal comfort conditions based on the provisions in American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.</li> <li>• Indoor air quality through control of indoor air pollutants, proper ventilation, and adequate maintenance, based on the provisions in ASHRAE Standard 62-1989, Ventilation for Acceptable Indoor Air Quality.</li> <li>• Illuminance levels according to the Illuminating Engineering Society of North America, IESNA Lighting Handbook – 1999, Lighting Design Guide.</li> </ul>
<p>Clean Energy Policy</p> <ul style="list-style-type: none"> <li>• Number of alternative energy plans developed or improved</li> <li>• Number of renewable portfolio standards established or improved</li> <li>• Number of interconnection standards established or improved</li> </ul>	<p>PM has added a Renewable Energy component that identifies Renewable Energy usage.</p>
<p>Building Energy Audits</p> <ul style="list-style-type: none"> <li>• Number of audits performed, by sector</li> <li>• Floor space audited, by sector</li> <li>• Auditor’s projection of energy savings, by sector</li> </ul>	<p><b>AN ENERGY AUDIT IS NOT AN END IN ITSELF!</b> There is no shortage of UNUSED Energy Audits in the libraries, offices and trash piles of building owners all across the state. Getting an energy audit that is objective, easy to understand and whose recommendations are <i>actually implemented</i> is the challenge. PM will identify what energy efficiency measures should be taken, and tracks their implementation and impact.</p>
<p>Energy Efficiency Rating and Labeling</p> <ul style="list-style-type: none"> <li>• Types of energy-consuming devices for which energy-efficiency rating and labeling systems were endorsed by the grantee</li> </ul>	<p>The ENERGY STAR program was created by the U.S. Department of Energy and U.S. Environmental Protection Agency to help consumers become aware of the ENERGY STAR concept and to promote the availability of ENERGY STAR products. ENERGY STAR helps consumers by providing an easily identified, third party verification of energy efficient products. ENERGY STAR is a registered trademark that indicates a product exceeds the minimum Federal energy use standards and/or uses less energy than similar products. ENERGY STAR products have high performance, long life and a low environmental impact, as well as money saving, through lower maintenance and utility costs over the life of the products.</p> <p>The following are examples of ENERGY STAR products that can be used in existing or new buildings to foster the efficient use of energy under an EEPS:</p> <ul style="list-style-type: none"> <li>• <b>Dehumidifiers</b> - ENERGY STAR® qualified dehumidifiers operate at least 10% more efficiently than standard models. Dehumidifiers help remove excess moisture from basements and other damp areas of the home. ENERGY STAR® qualified dehumidifiers provide enhanced moisture removal as well as quiet operation, reliability, and durability. An ENERGY STAR® qualifying dehumidifier can save a Michigan homeowner as much as \$840 over the 12-year lifetime of their dehumidifier.</li> <li>• <b>Room Air Conditioners</b> - Air conditioners that have earned the ENERGY STAR® label use at least 10% less energy than conventional models. Moreover, Thinking that a larger air conditioner</li> </ul>

means more cooling power, customers often buy a unit that is too large for the space they wish to cool. (Check the ENERGY STAR® Web site to determine which unit best meets your needs). Replacing a 10-year old room air conditioner with a new ENERGY STAR® qualified model can save up to \$35 annually on a customer's electricity bill.

- **Dishwashers** - Just as turning off the light when you leave a room can save energy, turning down the thermostat on your water heater can do the same. An ENERGY STAR® qualified dishwasher allows customers to turn down the thermostat of their water heaters from 140 to 120 degrees because water heaters inside the dishwasher boost the water temperature. By lowering the temperature of the water heater, customers can prevent unexpected scald burns in the kitchen or bath. This extra feature also reduces heating costs up to 10 percent. ENERGY STAR® qualified dishwashers use up to 25% less energy than the federal minimum standard for energy consumption. Replacing a 10-year old dishwasher with an ENERGY STAR® labeled dishwasher can save a customer more than \$30 a year in energy costs. The energy you save every year by purchasing an ENERGY STAR® qualified dishwasher is enough to brew nearly 9,000 cups of coffee. If every household in Michigan replaced their ten year old clothes washer with a new ENERGY STAR® qualifying model, the annual savings would be 905 million kWh/year, 77.6 million therms/year, and 36.9 billion gallons of water per year. That is enough energy saved to light a city the size of Lansing for 13.3 years and enough water saved for every Michigan resident to take 150 showers.
- **Clothes Washers** - ENERGY STAR® qualified clothes washers use an average of 50% less energy and 40% less water than conventional washers. In one year, ENERGY STAR® qualified clothes washers can save between \$25 and \$125 on your customer's energy bill depending on your customer's water heater type and utility rates, between \$20 and \$35 on the water bill, and an average of 8,560 gallons of water every year. Depending on utility rates, total utility savings range from \$65 to \$160/year. ENERGY STAR® qualified washers also remove more moisture from clothes, which reduces drying time. A shorter drying time means even greater energy savings. Meanwhile, the water a customer saves every year by purchasing a new ENERGY STAR® qualified clothes washer over another model is enough to do 12 month's worth of laundry. Designs used in ENERGY STAR® qualified washers also cause less wear and tear on clothes, which means that clothes last longer.
- **Refrigerators** - Refrigerators use the most energy of any home appliance. A new ENERGY STAR® qualified refrigerator, however, uses less energy than a 75-watt light bulb left on for one year. To save money and energy, Sears' customers can purchase an energy-efficient ENERGY STAR® labeled refrigerator, which are an average of 40% more efficient than conventional models sold in 2001. Replacing a 10-year old refrigerator with an ENERGY STAR® qualified model can cut a customer's electricity bill by \$25-\$60 a year, depending on utility rates.

	<ul style="list-style-type: none"> <li>• <b><u>ENERGY STAR® Rated Computers</u></b> - Power down when not in use. Laptops use even less energy than desktops. ENERGY STAR® Rated Monitors have a large savings potential. Screen savers that are compatible with the monitor's power management features.</li> <li>• <b><u>ENERGY STAR® Rated Printers</u></b> - Goes into sleep mode when not in use.</li> <li>• <b><u>ENERGY STAR® Rated Facsimile Machines</u></b> - Saves 50% energy by going into a sleep mode when not in use.</li> <li>• <b><u>ENERGY STAR® Rated Copiers</u></b> - 60% savings on electricity by turning off after a period of inactivity.</li> </ul>
Government, School, Institutional Procurement <ul style="list-style-type: none"> <li>• Number of units purchased, by type (e.g., vehicles, office equipment, HVAC equipment, streetlights, exit signs)</li> </ul>	PM will allow BUILDING LEVEL EE measures to be tracked and their impacts verified.
Industrial Retrofit Support <ul style="list-style-type: none"> <li>• Number of buildings retrofitted, by Industry Type</li> <li>• Square footage of buildings retrofitted, by Industry Sector</li> </ul>	BUILDING LEVEL
Loans, Grants, and Incentives <ul style="list-style-type: none"> <li>• Number and monetary value of loans given</li> <li>• Number and monetary value of grants given</li> <li>• Number and monetary value of incentives provided</li> </ul>	NA
Incremental Cost for Efficiency and Design Elements in New Buildings <ul style="list-style-type: none"> <li>• Number and square footage of new buildings designed, by sector</li> <li>• Number and square footage of new buildings constructed, by sector</li> </ul>	
Renewable Energy Market Development <ul style="list-style-type: none"> <li>• Number and size of solar energy systems installed</li> <li>• Number and size of wind energy systems installed</li> <li>• Number and size of other renewable energy systems installed</li> </ul>	
Financial Incentives for Energy Efficiency <ul style="list-style-type: none"> <li>• Monetary value of financial incentive provided, by sector</li> <li>• Total value of investments incentivized, by sector</li> <li>• Estimated impact of incentives on total investment made</li> </ul>	Portfolio Manager provides a platform to track energy and water use trends as compared with the costs of these resources. This is a valuable tool for understanding the relative costs associated with a given level of performance, helping you evaluate investment opportunities for a given building and identify the best opportunities across your portfolio.  The built-in financial tool within Portfolio manager allows you to compare cost savings across buildings in your portfolio while also allowing you to calculate cost savings for a specific project. Being able to quickly and clearly obtain figures showing cumulative investments in facility upgrades or annual energy

	costs eases decision making for best practice management of your buildings nationwide.
Technical Assistance (Number of information transactions contacts (for example, webinar, site visit, media, fact sheet) in which energy efficiency or renewable energy measure were recommended, by sector	
Transportation <ul style="list-style-type: none"> <li>• Number of alternative fuel vehicles purchased</li> <li>• Number of conventional vehicles converted to alternative fuel use</li> <li>• Number of new alternative refueling stations emplaced</li> <li>• Number of new carpools and vanpools formed</li> <li>• Number of energy-efficient traffic signals installed</li> <li>• Number of street lane-miles for which synchronized traffic signals were installed</li> </ul>	
Workshops, Training, and Education <ul style="list-style-type: none"> <li>• Number and type of workshops, training, and education sessions held</li> <li>• Number of people attending workshops, training, and education sessions</li> </ul>	PM can be done for groups via <i>LOCALLY ASSISTED</i> Webinars.
Other Activities Not Previously Defined (Pertinent metric information for any activity not defined above should be captured and included as needed)	<ul style="list-style-type: none"> <li>• Example: (a) ENERGY STAR Aggregation Initiative; (b) ES Congregations Initiative</li> </ul>
<b>Short-term Outcomes (DOE will provide supplemental guidance on how to calculate these outcomes to ensure consistent approaches that results can be aggregated at a regional, State and national level):</b>	
Energy Savings (kwh equivalents) <ul style="list-style-type: none"> <li>• Annual reduction in natural gas consumption (mmcf) by sector and end-use category</li> <li>• Annual reduction in electricity consumption (MWh) by sector and end-use category</li> <li>• Annual reduction in electricity demand (MW) by sector and end-use category</li> <li>• Annual reduction in fuel oil consumption (gallons) by sector and end-use category</li> <li>• Annual reduction in propane consumption (gallons) by sector and end-use category</li> <li>• Annual reduction in gasoline and diesel fuel consumption (gallons) by sector and end-use category</li> </ul>	PM will provide BUILDING LEVEL verification of reductions on an ongoing basis – as long as the PM is MAINTAINED.

Job Creation/Retention (Number, Type, Duration)	NA										
Renewable Energy Capacity and Generation <ul style="list-style-type: none"> <li>• Amount of wind-powered electric generating capacity installed (MW)</li> <li>• Amount of electricity generated from wind systems (MWh)</li> <li>• Amount of photovoltaic generating capacity installed (MW)</li> <li>• Amount of electricity generated from photovoltaic systems (MWh)</li> <li>• Amount of electric generating capacity from other renewable sources installed (MW)</li> <li>• Amount of electricity generated from other renewable sources (MWh)</li> </ul>	PM will provide BUILDING LEVEL verification of Renewable Energy usage on an ongoing basis – as long as the PM is MAINTAINED. Such data can be aggregated for PM users.										
<ul style="list-style-type: none"> <li>• Emissions Reductions (tons) (CO2 equivalents) (Methane, Carbon, Sulfur dioxide, Nitrogen oxide, Carbon monoxide)</li> </ul>	PM calculated emissions data as part of the program. For example, the MiIPL ENERGY STAR Congregations program generated the following emissions data:										
	<p style="text-align: center;"><b><u>TOTAL EMISSIONS REDUCTIONS TO DATE<sup>2</sup></u></b></p> <table style="margin-left: auto; margin-right: auto;"> <tr> <td><b>C02 (Global Warming)</b></td> <td style="text-align: right;"><b>17,354 Tons</b></td> </tr> <tr> <td><b>S02 (Acid Rain)</b></td> <td style="text-align: right;"><b>86 Tons</b></td> </tr> <tr> <td><b>Nox (Smog)</b></td> <td style="text-align: right;"><b>42 Tons</b></td> </tr> <tr> <td><b>Particulates (Asthma/Heart Attack)</b></td> <td style="text-align: right;"><b>3,291 lbs.</b></td> </tr> <tr> <td><b>Mercury (Cancer &amp; Birth Defects)</b></td> <td style="text-align: right;"><b>0.811 lbs.</b></td> </tr> </table> <ul style="list-style-type: none"> <li>• This comes to lifecycle savings of nearly 20,000,000 kilowatt-hours (kWh) or \$2,427,265 on energy bills</li> <li>• This is the equivalent of planting 4,717 acres of forest or keeping 2445 cars off of the road for a year</li> </ul>	<b>C02 (Global Warming)</b>	<b>17,354 Tons</b>	<b>S02 (Acid Rain)</b>	<b>86 Tons</b>	<b>Nox (Smog)</b>	<b>42 Tons</b>	<b>Particulates (Asthma/Heart Attack)</b>	<b>3,291 lbs.</b>	<b>Mercury (Cancer &amp; Birth Defects)</b>	<b>0.811 lbs.</b>
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<b>S02 (Acid Rain)</b>	<b>86 Tons</b>										
<b>Nox (Smog)</b>	<b>42 Tons</b>										
<b>Particulates (Asthma/Heart Attack)</b>	<b>3,291 lbs.</b>										
<b>Mercury (Cancer &amp; Birth Defects)</b>	<b>0.811 lbs.</b>										

<sup>2</sup> Michigan Interfaith Power and Light, LLC, July of 2004 and June of 2006 (lifecycle estimated offset).

## Attachment III

### **LEED: Leadership in Energy and Environmental Design**

**U.S. Green Building Council (e-mail at [leedinfo@usgbc.org](mailto:leedinfo@usgbc.org), tel: 202-828-7422)**

The U.S. Green Building Council is the nation's foremost coalition of leaders from across the building industry working to promote buildings that are environmentally responsible, profitable and healthy places to live and work.

- The U.S. Green Building Council (USGBC) is leading a national consensus for producing a new generation of buildings that deliver high performance inside and out.
- Council members work together to develop [LEED](#)® products and resources, the [Greenbuild](#) annual International Conference and Expo, policy guidance, and educational and marketing tools that support the adoption of sustainable building.
- Members also forge strategic alliances with key industry and research organizations and federal, state and local government agencies to transform the built environment.

LEED was created to:

- define "green building" by establishing a common standard of measurement
- promote integrated, whole-building design practices
- recognize environmental leadership in the building industry
- stimulate green competition
- raise consumer awareness of green building benefits
- transform the building market

The LEED (Leadership in Energy and Environmental Design) Green Building Rating System® is a voluntary, consensus-based national standard for developing high-performance, sustainable buildings. Members of the U.S. Green Building Council representing all segments of the building industry developed LEED and continue to contribute to its evolution. LEED standards are currently available or under development for:

- [New commercial construction and major renovation projects \(LEED-NC\)](#)
- [Existing building operations \(LEED-EB\)](#)
- [Commercial interiors projects \(LEED-CI\)](#)
- [Core and shell projects \(LEED-CS\)](#)
- [Homes \(LEED-H\)](#)
- [Neighborhood Development \(LEED-ND\)](#)

LEED provides a complete framework for assessing building performance and meeting sustainability goals. Based on well-founded scientific standards, LEED emphasizes state of the art strategies for sustainable site development, water savings, energy efficiency, materials selection and indoor environmental quality. LEED recognizes achievements and promotes expertise in green building through a comprehensive system offering project certification, professional accreditation, training and practical resources.

#### **LEED for Existing Buildings**

The LEED Green Building Rating System for Existing Buildings (LEED-EB) is a set of performance standards for the sustainable operation of existing buildings. The LEED-EB criteria cover building

operations and systems upgrades in existing buildings where the majority of interior or exterior surfaces remain unchanged. The LEED Rating System for Existing Buildings addresses:

- whole-building cleaning and maintenance issues including chemical use
- ongoing indoor air quality
- energy efficiency
- water efficiency
- recycling programs and facilities
- exterior maintenance programs, and
- systems upgrades to meet green building energy, water, IAQ, and lighting performance standards

### **LEED in Michigan**

LEED-EB is designed to complement the LEED Green Building Rating System, Version 2.0 for new construction and major renovations. The LEED-EB Rating System is part of a comprehensive suite of LEED assessment tools under development by the USGBC to promote sustainable design, construction, and operations practices in buildings nationwide. LEED-EB is applicable to existing buildings that are seeking LEED Certification for the first time as well as projects previously certified under LEED standards for new construction. LEED-EB provides the opportunity for building owners and operators to meet their sustainable operations goals and to reduce the impacts of their buildings on the environment and occupant health over their entire life cycle.

Further information on the rating system is available through the links at the top of the page, or by contacting the U.S. Green Building Council by e-mail at [leedinfo@usgbc.org](mailto:leedinfo@usgbc.org) or by telephone at 202-828-7422. Michigan also has two USGBC Chapters: Detroit Regional Chapter and West Michigan Chapter.