Introduction to Benchmarking and Project Financing for Multi-Family Housing

Presented by: Brittany Turner, Henrik Mader, & Briana DuBose
EcoWorks
September 25th, 2018
Agenda

9:00 am Welcome
9:10 am Benchmarking your Facilities
10:00 am Introduction to Project Financing

10:40 am Break

10:50 am Michigan Energy Efficiency for All (MEEFA)
11:20 am Facilitated Conversation

12:00 pm Adjourn
House Rules

Assume positive intent.
Encourage to use “I” vs. “we”.
Silence cellphones.

• Restrooms
• Trash & waste
EcoWorks Org-Wide Impacts

- 50,000 individuals served
- 35 government partners
- 300 business partners
- 200 green jobs supported
- $30M in energy savings
OUR PROGRAMS

Residential Education

Residential Education programs empower people to take control of their utility bills to save energy, water, and money. EcoWorks' trainings do not just educate—they provide the knowledge, motivation, and tools for attendees to take action and lower their utility bills.

LEARN MORE

CONTACT US:
22400 W. Seven Mile Rd.
Detroit, Michigan 48219
Tel: 313.894.1030 ext 122

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Residential Education Manager
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Reclaim Detroit

Reclaim Detroit has pioneered and proved deconstruction as a green alternative to building demolition and blight removal. Instead of spending money to tear down houses, Reclaim Detroit creates jobs and salvages valuable construction and design materials from houses.

LEARN MORE

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Youth Energy Squad

Youth Energy Squad grows the next generation of green leaders by engaging youth from diverse backgrounds in hands-on service learning projects that make their homes, schools and communities more sustainable.

LEARN MORE

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Strategic Community Initiatives

Strategic Community Initiatives (SCI) serves as a catalyst for green initiatives across Michigan by working with local government, neighborhoods and businesses to build partnerships and provide expertise that bring solutions to life.

LEARN MORE

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Benchmarking your Facilities
Overview

• U.S. EPA Portfolio Manager
  • Multi-family Housing Sector
• Utility Landlord Portals
• Web Services – Energy Data for Benchmarking
• Benchmarking Paid Services

September 26, 2018
An Overview of Portfolio Manager for Commercial Building Benchmarking

July 2018
Benchmarking allows you to:

- Compare your building to a **national sample** of similar buildings
- Compare your buildings of a similar type to **each other**
- **Identify underperformers** in your portfolio and set priorities for the use of limited staff time and/or investment capital

**ANY building can be benchmarked.**
Benchmarking allows you to:

• Evaluate portfolio-wide performance
• Understand individual building performance
• Compare energy performance to national median
• Identify and address potential problems by looking at monthly trends
• Track the impact of energy, water, waste management strategies
Range in Energy Performance: A City’s Fire Stations

Site Energy Intensity (KBtu/Ft²)

- Fire Station 8
- Fire Station 2
- Fire Station 3
- Fire Station 10
- Fire Station 4
- Fire Station 6
- Fire Station 5
- Fire Station 7
- Fire Station 11
- Fire Station 9
- Fire Station 12
Why focus on buildings and plants?

Energy waste in commercial buildings
Why focus on buildings and plants?

Low- to no-cost reduction potential

10%
• Launched Portfolio Manager in 1999 to help organizations increase efficiency of energy use

• Built on the principle that the foundation of good management is good information
  • Energy tracking and management was not widely practiced; no standardization
  • Designed for the use of building owners and managers, not for reporting to EPA

• Added water tracking in 2006, in collaboration with EPA’s WaterSense

• Added waste tracking in 2016, in collaboration with EPA’s Office of Resource Conservation & Recovery
Management Tool

- Assess whole building energy and water consumption
- Track green power purchase
- Share/report data with others
- Track changes in energy, water, greenhouse gas emissions, and cost over time
- Create custom reports
- Apply for ENERGY STAR certification

September 26, 2018
Hundreds of metrics, including:

- **Energy use**: Source, site, weather normalized, demand
- **Water use**: Water use intensity, Water Score (for Multifamily)
- **Waste & Materials**: Waste intensity, diversion rate
- **1-100 ENERGY STAR score**
- **GHG emissions**: Indirect, direct, total, avoided
Benchmarking with Portfolio Manager is the industry standard
Who Is Using Portfolio Manager?

- Building owners, managers, tenants, service providers
- Local, county, and state governments, some with benchmarking and public disclosure policies
- Federal agencies under executive orders & statutes
- Green building certification programs
  - LEED, Green Globes
- Consumer information sites
  - TripAdvisor, CoStar, Apartments.com
- Energy competitions
  - Kilowatt Crackdowns
- Investors, via sustainability reporting and ranking
  - GRESB, Greenprint, CDP
- Multifamily financing industry
  - Fannie Mae, Freddie Mac, HUD
Benchmarking laws that require use of ENERGY STAR Portfolio Manager

25+ laws nationwide

Buildings must:

1. Benchmark their energy use
2. Report it on an annual basis
3. Disclose to public or potential buyers/lessees

EPA only advises on the use of Portfolio Manager
Portfolio Manager account user interface
Set goals and track progress

- Set performance targets and baselines
- Monitor progress and document savings goals achieved
- Track targets at the building or portfolio levels
Beyond Benchmarking

- Access off-the-shelf portfolio-specific reports
  - Site and source EUI, water use intensity, emissions intensity, etc.
- Generate custom reports
- Create report templates for consistent reporting
- Create data requests to collect building data from other Portfolio Manager users
- Exportable charts & graphs
Manage your portfolio

- Create customized groups of buildings to manage your portfolio
- Share full or limited building information with other Portfolio Manager users
- Allow shared users access to edit or share building data
- Transfer buildings to other accounts
- Make copies of buildings
Developing a 1 – 100 ENERGY STAR Score

- Nationally representative survey
- Data analysis
- Statistical modeling
- Comparison between actual energy data and the modeled estimate

Descriptive Statistics for Variables in Final Regression Model

<table>
<thead>
<tr>
<th>Variable</th>
<th>Full Name</th>
<th>Mean</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>SELF1F</td>
<td>Source Energy per Square Foot</td>
<td>196.4</td>
<td>16.02</td>
<td>1133</td>
</tr>
<tr>
<td>LNQTF</td>
<td>Natural Log of Square Foot</td>
<td>5.316</td>
<td>8.517</td>
<td>13.82</td>
</tr>
<tr>
<td>KCLN</td>
<td>Number of Computers per 1000 sq ft</td>
<td>3.224</td>
<td>0.0003</td>
<td>12.19</td>
</tr>
<tr>
<td>LNWKRH</td>
<td>Natural Log of Weekly Operating Hours</td>
<td>3.972</td>
<td>3.611</td>
<td>5.324</td>
</tr>
<tr>
<td>LNWHRD</td>
<td>Natural Log of Number of Workers per 1000 sq ft</td>
<td>0.5816</td>
<td>1.883</td>
<td>2.651</td>
</tr>
<tr>
<td>HDDWPI</td>
<td>Heating Degree Days per Percent Heated</td>
<td>4411</td>
<td>0.0000</td>
<td>9277</td>
</tr>
<tr>
<td>COOLPC</td>
<td>Cooling Degree Days per Percent Cooled</td>
<td>1157</td>
<td>0.0000</td>
<td>7304</td>
</tr>
</tbody>
</table>

*Note:* All statistics are computed over the frequency data set (n=10 observations). Values are weighted by the CEDC's variable, `w2000w`. The mean values are used in vector formation for the regression.
Property types with 1-100 ENERGY STAR scores

*Not eligible for ENERGY STAR Certification

- Bank Branch
- Barracks*
- Courthouses
- Data Centers
- Distribution Centers
- Financial Offices
- Hospitals
- Hotels
- K-12 Schools
- Office Buildings
- Medical Offices*
- Multifamily Housing
- Residence Hall/Dormitory*
- Retail Stores
- Senior Care Communities
- Supermarkets
- Warehouses
- Wastewater Treatment Plants*
- Wholesale club/Supercenters
- Worship Facilities
ENdgy Star Certification for Commercial Buildings

- Building must be in the United States or territories
- Achieve an ENERGY STAR score of 75 or higher
- Apply for ENERGY STAR recognition via Portfolio Manager
- Application must be verified by a licensed professional
- Awarded based on the calendar year of application
- Must re-apply annually to keep current

1 to 100 Energy Performance Scale

National Average

Superior Energy Management!
The 1-100 ENERGY STAR Score

One simple number understood by ALL stakeholders.
ENERGY STAR in Canada

- EPA’s ENERGY STAR program partnered with Natural Resources Canada (NRCan) to adapt the tool for use with Canadian properties
- Portfolio Manager is available in French
- Eligible Property Types
  - Office, K-12 school, Hospital, Medical office, Food Retail/Supermarkets, Senior Care Communities/Residential Care Facilities, Ice/Curling Rinks
- Building certification has been available since March 2018
Get Started: Gather the information needed to benchmark

- Property information
  - Building type
  - Name, street address, ZIP/postal code
- Property type data
  - Gross floor area
  - Use details (e.g., workers, operating hours)
- Utility bills
  - From all purchased and on-site generated energy *(required for EUI and/or 1 to 100 ENERGY STAR Score only)*
  - From all purchased and on-site generated water
  - Related to waste management
Four Ways to Get Data in to Portfolio Manager

• **Manual Data Entry**
  • Type in each number for each monthly entry

• **Single Meter Spreadsheet**
  • Use a spreadsheet to update one meter a time
  • Copy/paste data from Excel to Portfolio Manager

• **Multi-meter Spreadsheets**
  • Use a spreadsheet to update multiple meters from multiple properties

• **Web Services**
  • Companies electronically enter utility data into Portfolio Manager through a process of data exchange called “web services”
  • Find utilities that provide aggregated benchmarking data at [www.energystar.gov/utilitydata](http://www.energystar.gov/utilitydata)
Learn more about Portfolio Manager

- Visit [www.energystar.gov/buildings/training](http://www.energystar.gov/buildings/training)
  - Step-by-Step guides for using Portfolio Manager
  - Access to live and recorded webinars
  - Webinar slides for Portfolio Manager 101, 201, and 301
  - Short videos to help you create a property, create meters, populate meters, create reports, and more!
Tap into ENERGY STAR Technical Assistance

- On-demand user support, and answers to frequently asked questions at [www.energystar.gov/buildingshelp](http://www.energystar.gov/buildingshelp)
- Attend a live “Ask the Expert” session scheduled via [https://esbuildings.webex.com](https://esbuildings.webex.com)

![Portfolio Manager Help](image)
Energy Star®
Portfolio Manager®


energystar.gov/benchmark
What was updated in ENERGY STAR Portfolio Manager?

• On **August 26, 2018**, EPA released updated metrics to the tool as part of its standard process to keep ENERGY STAR metrics as current as possible:

  - **1-100 ENERGY STAR score models** for U.S. buildings (based on CBECS 2012)
    - Bank branches
    - Courthouses
    - Financial offices
    - Hotels
    - Houses of worship
    - K-12 schools
    - Offices
    - Retail, including retail store and warehouse club/supercenter
    - Supermarkets
    - Warehouses, including refrigerated, non-refrigerated, and distribution centers

  - **National source energy factor**

  - **Data center benchmarking options**
Because average energy and grid performance is improving, the ENERGY STAR scores and performance metrics of individual buildings, on average, decreased.
How did this impact historical scores?

• When EPA updated the methodology, the new calculations were applied to all time periods.

• This enables you to continue to compare performance over time.
  ▪ Even if your scores decreased, you’ll still see your improvement between the baseline and the current periods
  ▪ You’re still able to analyze differences that are a result of your own activities, not EPA’s methodology.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ENERGY STAR Score (1-100)</td>
<td>39</td>
<td>48</td>
<td>9.00 (23.10%)</td>
</tr>
<tr>
<td>Source EUI (kBtu/ft²)</td>
<td>294.9</td>
<td>264.4</td>
<td>-30.50 (-10.30%)</td>
</tr>
<tr>
<td>Site EUI (kBtu/ft²)</td>
<td>118.7</td>
<td>95.8</td>
<td>-22.90 (-19.30%)</td>
</tr>
<tr>
<td>Energy Cost ($)</td>
<td>581,581.78</td>
<td>540,588.06</td>
<td>-40,993.72 (-7.00%)</td>
</tr>
<tr>
<td>Total GHG Emissions Intensity (kgCO2e/ft²)</td>
<td>11.3</td>
<td>9.9</td>
<td>-1.40 (-12.40%)</td>
</tr>
<tr>
<td>Water Use (All Water Sources) (kgal)</td>
<td>3,373.9</td>
<td>3,228.1</td>
<td>-145.80 (-4.30%)</td>
</tr>
<tr>
<td>Total Waste (Disposed and Diverted) (Tons)</td>
<td>879.99</td>
<td>836.75</td>
<td>-43.24 (-4.80%)</td>
</tr>
</tbody>
</table>
How do updated metrics in Portfolio Manager and Target Finder affect commercial new construction projects?

- The updates affected calculations for the following metrics:
  - Energy use associated with your selected design target
  - ENERGY STAR score calculated for your estimated annual site energy
  - Source energy use calculated for your estimated annual site energy
  - Estimated GHG emissions

- The update did *not* change the metrics for the following:
  - Estimated site energy you entered
  - Design target you selected
  - Energy cost data (unless you chose the default values)

- All metrics have been recalculated and applied retroactively to design projects stored in Portfolio Manager
- The updates may have affected eligibility for Designed to Earn the ENERGY STAR Recognition on new projects
- For more details, see FAQ [How will the metrics update affect design projects?](#)
What else changed in August?

Data center energy estimates

- New option: Estimated data center energy use
  - Designed for smaller data centers, within another property type, and where it is not practical to measure IT Energy
  - If IT energy is not metered, users will have the chance to apply estimates generated by Portfolio Manager
  - Estimate capped at 10% of the building area

New use details in Portfolio Manager

- Warehouse
  - Percentage of gross floor area used for cold storage (New in August)
  - Percent that can be cooled and percent that can be heated (New in August for refrigerated warehouses)
- Worship Facilities
  - Gross floor area used for food preparation (New in August)
  - Percent that can be cooled and percent that can be heated (New in August)
- K-12 Schools
  - Number of workers on main shift
    - Existed previously, but now required
- Supermarket
  - Number of open or closed refrigeration/freezer units
    - Existed previously, but now required
Any other changes in August?

Update to Source Energy Factor

• Source energy traces the heat and electricity requirements of the building back to the raw fuel input
  • Level playing field for different fuel types
• Portfolio Manager delivers several key performance indicators in source energy:
  • Weather normalized source EUI
  • ENERGY STAR score
• New approach
  • Offsite renewables lower the national average electric source factor. Electricity generated from renewable energy sources has lower raw fuel inputs than electricity generated from fossil fuels.
• Updated electric source factor released Aug 26, 2018
  • Dropped from 3.1 to 2.8 (more efficient grid)
  • Impacted ENERGY STAR score & all source energy metrics
  • ENERGY STAR score increased or decreased depending on a building’s fuel-mix ratio
  • Changes based on this update alone were small in magnitude comparatively
Learn more

energystar.gov/scoreupdates

• Summary of changes
• Links to FAQs
• Links to register for an EPA informational webinar on 8/29 or 9/5
• Slides from previous webinars
  • Embedded video of recorded update webinars
  • Links to sector-specific update webinars
• Communications toolkit
  • Fact sheet and template training slides
Benchmarking Case Study: TIAA-CREF Multifamily Housing

• Investments in:
  • approximately 12,000 multifamily units,
  • 45 million square feet of Class A office space,
  • more than 20 million square feet of retail properties,
  • and significant investments in other real estate asset types.

• Partnered with (EPA) ENERGY STAR program in 2002

• More than 25 million square feet of ENERGY STAR labeled properties

• Expanded into multifamily portfolio in 2007

Source: https://www.energystar.gov/sites/default/files/buildings/tools/TIAA-CREF_MF_Housing_Case_Study.pdf
Benchmarking Case Study: TIAA-CREF Multifamily Housing

Best Practices Implementation

• In 2008 TIAA-CREF implemented a set of strategic energy management initiatives across more than 40 multifamily properties. Some of the strategies implemented include:
  • Replacing incandescent lighting with ENERGY STAR qualified CFLs
  • Purchasing only ENERGY STAR qualified appliances and equipment for replacements
  • Installing 7-day programmable thermostats in common areas and amenity areas
  • Reducing pool and hot tub temperatures
  • Training staff to operate model and vacant units more efficiently

Source: https://www.energystar.gov/sites/default/files/buildings/tools/TIAA-CREF_MF_Housing_Case_Study.pdf

September 26, 2018
Create Portfolio Manager Account

https://portfoliomanager.energystar.gov/pm/signup

- Very IMPORTANT to update building information
- Centralized online source for building and energy use data
# How to Read an Electric Utility Bill

## Detail of Current Charges

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Supply Charges</td>
<td>Power Supply Energy</td>
<td>3040 KWH @ 0.077430</td>
</tr>
<tr>
<td></td>
<td>Power Supply Cost Recovery</td>
<td>3040 KWH @ -0.002330</td>
</tr>
<tr>
<td>Delivery Charges</td>
<td>Service Charge</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LIEAF Factor</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Energy Optimization</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Distribution</td>
<td>3040 KWH @ 0.039200</td>
</tr>
<tr>
<td>Nuclear Surcharge</td>
<td>3040 KWH @ 0.000728</td>
<td>2.21</td>
</tr>
<tr>
<td>U-18255 1S</td>
<td>1360 KWH @ 0.003252</td>
<td>4.42</td>
</tr>
<tr>
<td>Transitional Recovery Mechanism</td>
<td>3040 KWH @ 0.001356</td>
<td>4.12</td>
</tr>
<tr>
<td>U-18014 SIR</td>
<td>3040 KWH @ -0.004502</td>
<td>-13.69</td>
</tr>
<tr>
<td>Total DTE Electric Company Current Charges</td>
<td></td>
<td><strong>386.71</strong></td>
</tr>
</tbody>
</table>

## Current Billing Information

- **Service Period**: Oct 14, 2017 - Nov 13, 2017
- **Days Billed**: 31
- **Meter Number**: 7209875.11
- **Meter Reading**: 2333 Est. - 2671 Actual
- **Difference**: 38
- **Multiplier**: 80
- **KWH Used**: 3040
- **Your next scheduled meter read date is on or around DEC 14, 2017**

## Usage History - Average per day

<table>
<thead>
<tr>
<th>Month</th>
<th>Year</th>
<th>Last Year</th>
<th>Month</th>
<th>Year</th>
<th>KWH Usage</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>115</td>
<td>-50%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**If You Smell Natural Gas and DTE Gas Company is Your NaturalG Provider**, Call 800.947.5000

If the odor is strong, leave the building immediately. Do not use electric switches or an open flame. Open doors and windows.

**If Your Electricity Goes Out**

Check your fuses or circuit breakers, then see if your neighbors' lights are on. To report an outage or fallen power line, contact your electric company. DTE Electric Company customers, call 800.477.4747 or visit dteenergy.com from a location that has power. Stay at least 20 feet away from a fallen power line and anything it's touching, including metal fences and puddles.

**Energy Theft is illegal & dangerous**

Confidentially report suspected tampering trying calling our theft hotline at 800.441.6698.

**For More Information**

For more information on your bill or alternative payment methods, call 800.477.4747, visit dteenergy.com, or write to DTE Energy, One Energy Plaza, Detroit, MI 48226-1221.

DTE Electric Company and DTE Gas Company are DTE Energy subsidiaries and are regulated by the Michigan Public Service Commission, Lansing, Michigan.
Trouble shoot spikes!

Energy Use by Calendar Month

- Natural Gas
- Electric - Grid
Next Steps/Recommendations

- Identify the appointed person to benchmark utility bills and monitor each building's electricity and gas usage.
Next Steps/Recommendations

❑ Update utility bill information in Portfolio Manager at least quarterly to keep track of energy consumption and to identify possible gas or water leaks or spikes in energy use.
Next Steps/Recommendations

- Identifying poor performing buildings and prioritize facilities for energy improvement projects.
- Consider utility bill optimization
Next Steps/Recommendations

☐ Communicate annual report on energy use patterns and a baseline energy usage comparison to facility managers.
Consumers Energy Landlord Portal

Source: https://www.consumersenergy.com/landlord/out/login.aspx
Consumers Energy Multi-Family Program

You’re Already on Your Way to Saving Energy
First things first, does your building have three or more units and do we provide you with natural gas or electricity? If so, you qualify!

HERE’S HOW THE PROGRAM WORKS

1. Free Energy Assessment
   An energy advisor will come to your property to show you how you can save energy.

2. Free Direct Install Products
   You’ll get products installed in each unit - at no cost to you and your tenants.

3. Rebates
   Make a bigger step to saving energy with equipment upgrades in common areas and receive cash back.

For more information call 877-813-9617 or visit ConsumersMultifamilySavings.com

Source: http://www.consumersmultifamiliysavings.com

September 26, 2018
Landlord Utility Management is designed specifically for use by landlords to help manage electric and natural gas service from DTE Energy.

Tools You Can Use

DTE Energy's new landlord online experience enables you to:

- Manage Automatic Transfer of Service (ATS) program enrollment for both commercial and residential rental properties.
- Self-identify as a landlord for a property without enrolling in ATS. This feature will allow landlords to easily view the status of all their rental units in one location and allow them to receive tenant shutoff notifications on registered properties.
- Analyze, track, download and/or print energy usage information for rental properties at any time.
- Request to start and stop electric and natural gas service.
- View and track utility status of rental property, including pending move-ins and move-outs.
- Create and manage delegate users to assist you with managing properties. You can choose to assign them either full access or view only access to your online account.
DTE Multi-Family Program

Multifamily Program Overview

The DTE Energy Multifamily Program offers two ways for multifamily building owners and tenants to save money on the utility bills.

**Direct Install**
The direct install approach offers FREE energy-saving products to eligible tenants. Tenants can receive up to 20 LED lamps for FREE!

**Common Area**
The common area approach offers incentives for energy-saving measures in common areas of multifamily buildings.
*The Multifamily Common Area rebates are fully subscribed for 2018. Multifamily residential complexes with a DTE commercial account are now eligible to participate in the DTE Energy Efficiency Program for Business for common area measures. For assistance call 866-796-5012 (select option 3)*

To schedule an appointment, call Energy Efficiency Contact Center toll-free at **866.796.0512** (press option 2).

Web Services – Energy Data for Benchmarking

Source:
https://www.energystar.gov/buildings/owners_and_managers/existing_buildings/use_portfolio_manager/find_utilities_provide_data_benchmarking
Benchmarking Paid Services

- WeGoWise
- Energy CAP
- Elevate Energy
- EcoWorks
Project Financing
Project Financing

1. Operating Funds & Lifecycle Costing
2. Green Procurement Policies
3. Subsidies, Grants, and Rebates
4. Tax Credits
5. Debt
6. 3rd Party Ownership
7. Property Assessed Clean Energy (PACE)
Operating Funds: Lifecycle Costing

- Accounts for all stages of a product’s life
- Avoids unexpected future expense
- Ensures lowest long-term cost
- Economic systems thinking
Lifecycle Costing

<table>
<thead>
<tr>
<th>Project Age</th>
<th>Total Cash Flow</th>
</tr>
</thead>
<tbody>
<tr>
<td>11 Years (simple payback)</td>
<td>$84,000</td>
</tr>
<tr>
<td>25 Years</td>
<td>$300,000</td>
</tr>
</tbody>
</table>

Example: Simple Payback (Solar PV)

- 25-year useful life
- Saves 6% annual price increase of electricity
- 11.1 year payback

Source: Rick Bunch and Grant Faber, Energy Management and Capital Improvement Planning.
Green Procurement Policies

• Supports long term energy goals
• Institutionalizes energy savings
• Streamlines best practices for purchasing
Subsidies, Grants, and Rebates

- **DOE Small Grants, EERE Exchange**
- Database of State Incentives for Renewables & Efficiency ([DSIREUSA.org](http://DSIREUSA.org))
- **Michigan Agency for Energy**
- Utility multifamily programs
- **Michigan Energy Options Multifamily Program**
- Be scrappy!

September 26, 2018
Utility Multifamily Programs

**DTE Multifamily**
- Free energy assessment
- Direct Install: up to 20 LED lights per tenant
- Common Area: Incentives for energy saving measures in common areas
- Report on recommended common area projects

**Consumers Multifamily**
- Free energy assessment
- Selected no-cost upgrades installed
- Report on recommended projects and rebates

September 26, 2018
Debt

Loans

• **Michigan Saves Multifamily Energy Financing Program**

• Community Development Financial Institutions (CDFIs)

• **Fannie Mae Multifamily Green Financing**

• **Michigan Energy Office Energy Efficiency and Renewable Energy Loans**

Energy Efficiency and Renewable Energy Loans for Michigan Businesses

The Michigan Energy Office is offering small businesses in Michigan loans for energy efficiency upgrades and renewable energy (RE) project implementation. This effort is directed at businesses that are seeking to upgrade and/or install clean energy technologies. Loans totaling $1.5 million are available. Loan requests should be between $50,000-$350,000, and limited to supplies, materials and equipment costs only. (Click for details)
What is the Low Income Housing Tax Credit (LIHTC)?

- Authorized by Section 42 of the Internal Revenue Code
- Claimed over a period of 10 years with a Compliance Period of 15 years.
- Allocated to entities that build or rehabilitate rental housing and commit to maintaining affordable rents for a minimum of 30 years.
- Designed to fill a funding gap between total development costs and the loans the project can support to finance the project.
LIHTC and Energy Efficiency

- Michigan’s Qualified Allocation Plan (QAP) Green Policy requires consideration of energy efficiency for LIHTC applicants

- MSHDA Affordable Green Standards:
  - New Construction, Acquisition/Rehabilitation, Historic Preservation, Adaptive Reuse

- Additional points for meeting third party standards:
  - Enterprise Green Communities
  - National Green Building Standard (NGBS)
  - US Green Building Council LEED Certification
## Business Energy Investment Tax Credit (ITC)

<table>
<thead>
<tr>
<th>TECHNOLOGY</th>
<th>12/31/16</th>
<th>12/31/17</th>
<th>12/31/18</th>
<th>12/31/19</th>
<th>12/31/20</th>
<th>12/31/21</th>
<th>12/31/22</th>
<th>FUTURE YEARS</th>
</tr>
</thead>
<tbody>
<tr>
<td>PV, Solar Water Heating, Solar Space Heating/Cooling, Solar Process Heat</td>
<td>30%</td>
<td>30%</td>
<td>30%</td>
<td>30%</td>
<td>26%</td>
<td>22%</td>
<td>10%</td>
<td>10%</td>
</tr>
<tr>
<td>Hybrid Solar Lighting, Fuel Cells, Small Wind</td>
<td>30%</td>
<td>30%</td>
<td>30%</td>
<td>30%</td>
<td>26%</td>
<td>22%</td>
<td>22%</td>
<td>N/A</td>
</tr>
<tr>
<td>Geothermal Heat Pumps, Microtubines, Combine Heat and Power Systems</td>
<td>10%</td>
<td>10%</td>
<td>10%</td>
<td>10%</td>
<td>10%</td>
<td>10%</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Geothermal Electric</td>
<td>10%</td>
<td>10%</td>
<td>10%</td>
<td>10%</td>
<td>10%</td>
<td>10%</td>
<td>10%</td>
<td>10%</td>
</tr>
<tr>
<td>Large Wind</td>
<td>30%</td>
<td>24%</td>
<td>18%</td>
<td>12%</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>
3rd Party Ownership: Power Purchase Agreements (PPAs)

- Third party installs, owns, and operates equipment
- Sells generated electricity to off-taker at agreed price
- Stabilizes energy costs
- Pre-paid PPA can reduce project cost

https://gozero.energy/ppa/
September 26, 2018
PPA Examples

• Varied Projects and Scales:
  • Solar PV
  • Anaerobic Biodigesters
  • Co-generation (CHP)
  • Lighting systems
  • Microgrids

• Spartan PV1, Michigan State University
  • 13.5 MW(DC)
  • 15,000 MWh/year
  • 25 year PPA
  • Estimated $10M savings/25 years
Performance Contracting: ESCOs

• Energy Service Companies (ESCOs), Energy Service Providers

• No capital outlay
  • ESCO takes on risk, financing, investment

• Drawbacks
  • Most savings go to ESCO
  • One-sided contracts
  • Contracts longer than tenure of staff and managers
  • Costs omitted, thus overstatement savings
  • M&V costs, responsibility
Energy-as-a-Service

- Emerging financing model
- Broader project scope
- Emphasis on reliability and resiliency

Source: Calhoun, Koben et al. (2017) Lumens As A Service. Rocky Mountain Institute
Property Assessed Clean Energy (PACE)

• Special Assessment tied to property
• “Runs with the land” and secures financing
• Immediate positive cash flow
• Can be used to secure PPAs
• Considerations:
  • Minimum project size of $100,000
  • Minimum annual energy expense of $5,000

Lean & Green Homepage
Michigan PACE Districts

Counties
Antrim
Bay
Calhoun
Delta
Eaton
Genesee
Grand Traverse
Gratiot
Houghton
Huron
Ingham
Kalamazoo
Leelanau
Macomb
Marquette
Midland
Montcalm
Oakland
Saginaw
St. Clair
Washtenaw
Wayne

Cities
Bloomfield Twp.
Ferndale
Grand Rapids
Jackson
Kentwood
Orion Twp.
Pleasant Ridge
Pontiac
Rochester Hills
Royal Oak
Southfield
Troy
Wyoming
PACE for Multifamily Housing

• $124,335 financed with 20 year project term
• Net savings: $175,680
• Lighting, HVAC, water conservation measures

September 26, 2018
Quantifying and Capturing the Large Efficiency Potential in the Multifamily Affordable Housing Sector
Energy costs present the best opportunity to reduce operating expenses and help sustain affordable housing.
Energy Efficiency for All

Mission: making multifamily homes healthy and affordable through energy efficiency

Working to reach 5 million homes in twelve states across America

September 26, 2018
Our Approach

Energy Efficiency Stakeholders

Affordable Housing Stakeholders
“I’m a single father with a son named Jayden. My building was improved and now my son can focus on learning his ABCs instead of worrying about being cold.”

Dewitt Hood, affordable housing resident, speaking to D.C. Public Service Commissioners
EEFA Potential Study

THE STUDY DETERMINED THAT BY 2035, MICHIGAN COULD COST-EFFECTIVELY:

-32%  
Reduce annual electricity usage by 649 GWh (32 percent) in affordable multifamily buildings.

-15%  
Reduce gas usage by 3,410 Btu (15 percent) in affordable multifamily buildings.

$3.00  
Realize $3.00 in benefits for every $1.00 invested in energy savings in affordable multifamily buildings.

-$   
Realize multiple non-energy benefits, including reduced bill arrearages, reduced customer calls and collection activities, reduced safety-related emergency calls, improvements in residents’ health, increased resident comfort, and increased housing property values.
Most of the Benefits from Low-Income EE are NOT energy-related.
Non-Energy Benefits

Utility benefits, e.g.
• reduced arrearage carrying costs
• reduced customer collection calls/notices
• reduced termination/reconnection costs
• reduced bad debt write-offs

Participant benefits, e.g.
• water/wastewater bill savings
• reduced maintenance costs
• lower turnover rates
• increased comfort
• increased durability
• improved safety
• improved health (e.g. less asthma resulting in fewer sick days)

Societal benefits, e.g.
• economic development
• job creation
• energy security
• reduced emissions and environmental impacts
• reduced health care spending
• maintenance of affordable housing

September 26, 2018
For more information

www.EE4A.org

www.prezcat.org
MEEFA Partners
MEEFA Initiatives

OUR INITIATIVES

HEALTH AND ENERGY EFFICIENCY NEXUS

BUILDING OWNER DEMAND

ENHANCING LANDLORD DATA PORTALS

MICHIGAN LOW INCOME ENERGY (MILIE) WORKING GROUP

POWERFUL MULTIFAMILY PROGRAMS

CITY AND COUNTY IMPACT

TOMORROW'S ENERGY POLICY

September 26, 2018
Facilitated Discussion

What has your organization done to address energy efficiency?
What are your lessons learned?
What are your next steps?
LEARN MORE ON OUR WEBSITE!

www.ecoworksdetroit.org

Who is SCI?

Strategic Community Initiatives (SCI) is a division of EcoWorks that enjoys wrestling with...
Community Energy Management: Get in touch!

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