



SpotLight on Maintenance

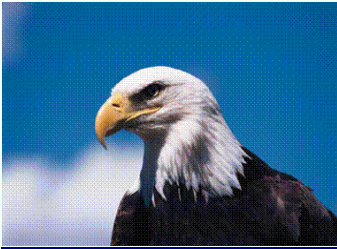
OPFMA Newsletter - Connecting Knowledge with Public Facilities' Needs!
Fall 2015

Ohio Public Facilities Maintenance Association

OPFMA is a not for profit (501) (c) (3) independent educational trade organization

OPFMA 2015 Third Quarter

By Alexandra Schneider, OPFMA Administrator/ CEO



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2015 OPFMA Conference registration process is almost complete, Attendees registration is still open until Oct 9th or until the max capacity is reached.

2015 Conference has (27) workshops scheduled. Speakers are already lined up and prepared for meeting their audience! The Trade Show & overflow is packed with large variety of businesses - ready to provide attendees with the latest data, services and answer their questions. Exhibitors Raffle is held during the Trade Show - and exhibitors' creative ideas of raffle donation will please our attendees! Attendees, use this opportunity to visit every booth, including those outside of the Grand Ballroom - ask questions, gather useful data, and participate in Table Talks! The more up to date is your knowledge the more valuable you are for your facility!

A Note for the New Attendees!

Oct 26th - 7:15 a.m. - Registration, Foyer #1
Come to the Registration Table to:
Sign-In & receive
Attendee's Folder,
Meals tickets, and
Welcome to Conference item

Attendee-folder contains detailed data of all 27 workshops: topics-summary, schedule day & time and speakers' bio.

Check your folder; get informed before classes to select the ones that fit the best your educational needs!

OPFMA Conference Committee & OPFMA Administration is working hard to meet your educational needs - during the Conference we are always ready to assist you!

OPFMA 2015 Conference & Annual Trade Show

Oct 26th & Oct 27th

Attendee Registration Deadline

Oct 9th, 2015

Still time to register!



Location: Columbus Crowne Plaza Hotel
For room reservation call Crowne Plaza Hotel:
(614) 885-1885

OPFMA 2015 Trade Show

Sold Out!

Best of Success to ALL OPFMA Exhibitors!

OPFMA 2015 Conference Sponsors

Noble Americas Energy Solutions

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Your support is deeply appreciated!

Editor's Note:

Next Edition - **December 2015**
Publication Terms & Deadline
Submit Material to be Published
Before - **December 01, 2015**

OPFMA Seminars – Registration open!

Visit www.opfma.org - get the Registration Form

There is Still Time to Register!

Saving Money while Saving Our Environment
Oct 7th, 2015 – Dayton

Energy Efficiency & Sustainability
Oct 12th, 2015 - Athens

**OPFMA 2015
Standing Committees**

OPFMA Executive Committee

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 Vice-President [Carl Roxbury](#)
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•••

Join us in Welcoming at Board OPFMA new Trustee,
 Mr. [Stephen Masters](#) - OHIO Department of Transportation!

OPFMA Standing Committees

Marketing & Membership - Chair - [Constantin Draganoiu](#)
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 Governance Committee - Chair - [Wayne King](#)
 Conference Committee - Chair - [Carl Roxbury](#)

Conference Committee includes all OPFMA Trustees & welcomes

Other OPFMA members & volunteers -
 Simply Contact us via our website:
www.opfma.org

**OPFMA New Members –
Welcome Aboard!**

Individual Member

[Keith Wagner](#) - [Shaker Heights City SD](#) - Dir of OPS
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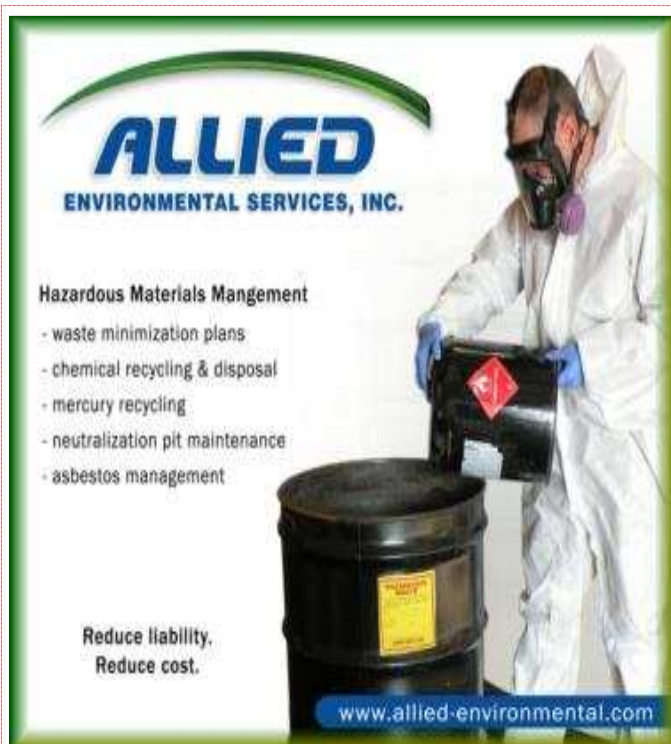
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Retro-Commissioning Strategies

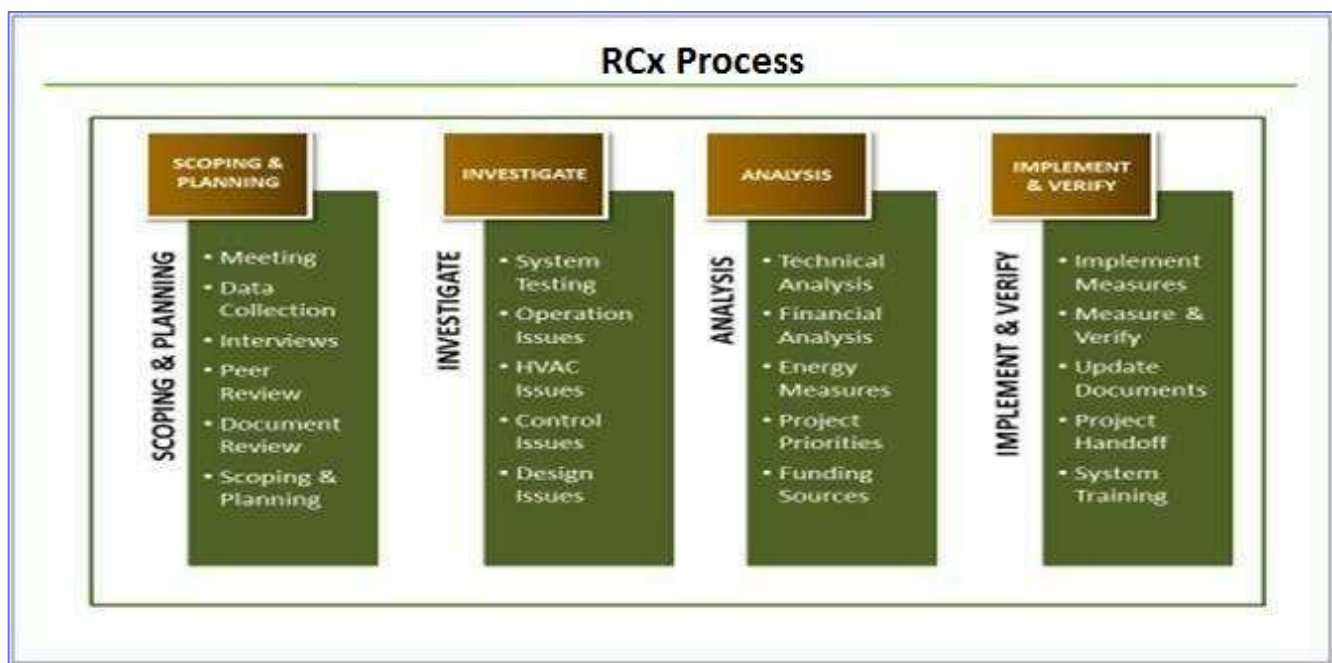
By Dave Zehala, President Plug Smart

What is Retro-Commissioning (RCx)?

Think of your building like a vehicle. It can last a long time with the right care, and even continue to run well with regular tune-ups. This takes some time and attention, but is worth it to maintain the integrity of the vehicle. In the same way, Retro-Commissioning (RCx) is the process of “tuning up” a building’s mechanical, electrical, and controls systems. Instead of every 3,000-5,000 miles, the U.S. Department of Energy recommends RCx be performed every 3-5 years. RCx is different than an audit, where deeper retrofit savings opportunities would be revealed, but rather focuses on operations & maintenance improvements and no-cost or low-cost repairs that provide quick payback without requiring capital funding.

What are the costs and benefits?

RCx typically costs between \$0.27-\$0.52/ft², although Plug Smart can provide this service to AEP customers for free through their Retrocommissioning Program. RCx clients reduce their energy bills by an average of 15% and enjoy quick payback in less than 2 years. In addition to energy benefits, RCx also increases equipment life, reduces comfort complaints and increases occupant productivity, improves indoor air quality, minimizes warranty claims, reduces system O&M costs, reduces SBS liability and increases property asset value.



What are some example RCx measures?

One of the easiest, most effective ways to reduce energy waste is to make sure your building is only being heated or cooled when it is occupied, and at an appropriate temperature. Optimizing the occupancy schedule and setpoints reduces the number of system overrides, which add up quickly and cost around \$0.39 per degree per hour (depending on building size). Plug Smart follows the following standard for maximum comfort and energy conservation:

- Occupied Heating: 70° F
- Unoccupied Heating: 64° F
- Occupied Cooling: 74° F
- Unoccupied Cooling: 80° F

Ventilation air can also be optimized by automating the supply to meet variable demand. With CO₂ sensors in place, air supply is reduced for lower occupancy loads. Often, broken damper actuators cause discrepancies between what is shown in the control system and what is actually happening in the field.



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Wisdom from the Bright Minds of the Past....

- It is not enough to have a good mind. The main thing is to use it well. /*Descartes 1637*
- There are two ways of spreading light: to be the candle or mirror that reflects it.
- The price of greatness is responsibility. /*Sir Winston Churchill*
- When we blame ourselves, we feel no one else has the right to blame us.
- The best thing about the future is that it comes only one day at a time. /*Abraham Lincoln*
- Perseverance is more prevailing than violence. By perseverance the snail reached the Ark!
- One does not moisten a stamp with the Niagara Falls.

Data Should Drive Energy Upgrades

By: Richard G. Lubinski, GEM, CM, CDSM, President, Think Energy Management, LLC

Here's how FM's should use numbers to plan energy measures and to prove that they worked. Energy efficiency provides a much greater average annual return than most other common investments, with relatively little risk.

It's important for facility managers to understand the importance of data before, during, and after energy efficiency projects. Data can be your friend. Data guides energy audits (also called energy assessments) that lead to the creation of energy conservation measures (ECMs) that will serve the building's interests. Those audits also provide reliable estimates of energy savings and return on investment (ROI).

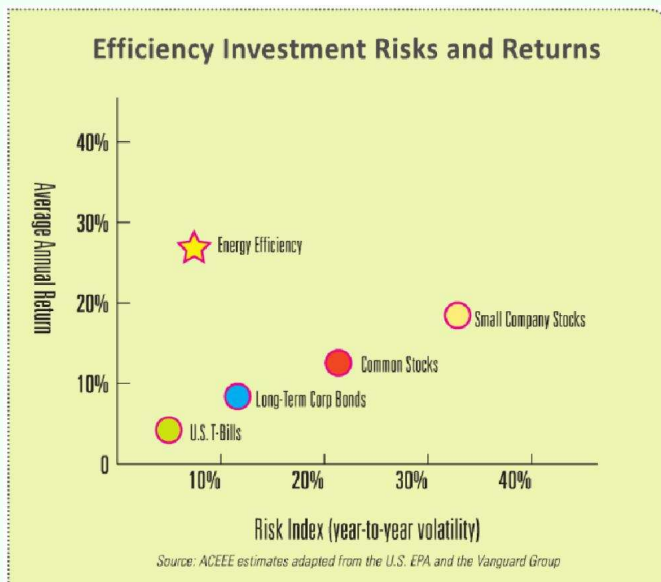
Data Should Drive Energy Upgrades

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There are plenty of ways to get useful data for an energy project. Energy professionals (professional engineers and certified energy managers) divide data into two categories: primary (data you collect) and secondary (already in existence).

Let's start with the latter. Energy audits start with a detailed understanding of a building's monthly utility bills (electricity, natural gas, water/sewer, and other fuels such as district chilled water or steam), each utility bill provides useful information about each meter reading and, most importantly, how the customer is billed based on the design of each utility rate (tariff). Average cost per utility unit, while useful, only tells part of the picture. Most utility companies can produce a 12-24-36 month summary of monthly consumption and costs that provide the energy auditor with insight into how the building performs seasonally. This data is the basis of developing an energy balance for each building. Many utilities with advanced metering can also provide you with interval data or consumption every 15 to 30 minutes showing the rate of consumption (i.e., demand) and the level of consumption 24/7.

Additional secondary utility data may be available for electrical, energy (ETU), natural gas, and water sub-metering of tenants or building systems. Some buildings will have a separate utility service or sub-meter for the central plant to enable the facility staff to provide monthly utility cost allocation based on something other than tenant square footage. This level of data provides a better understanding of who is using energy, where, and when.



Most buildings have electrical sub-meters and some have sub-metering for natural gas or water. The combination of building-owned and utility-owned meters and sub-meters and

tenant sub-metering provides the energy engineer with insight into utility consumption and thereby the data with which to create an accurate energy balance spreadsheet and pie chart.

Some energy management systems and building automation systems also have programmable data logging functions, often called trends in EMS /BAS speak.

DIY Data Collection

Primary data collection involves the active measurement of a building's energy use and usually requires the installation of data loggers. Data loggers can measure and record the following in a time date stamp for each reading: electrical consumption, electrical demand, motor run time, light levels and lighting on/off patterns, space temperatures, HVAC system temperatures (i.e., supply air temperature), relative humidity, space occupancy, and a combination of factors. Data are available in the raw format, formatted with time/dates, exported to MS Excel for analysis, and in graphs for reports. Most facility managers like to see the graphic representation of data to more easily understand what is happening, where, and when.

Data loggers provide real-world data on what is actually happening each day in a building, versus what people think is happening or what is supposed to be happening, Data loggers can confirm what is working well and what areas need improvements, and give feedback on EMS/ BAS controls, manual control efforts, housekeeping activities, etc.

Data loggers also provide accurate system run times that are part of energy-use and energy-savings calculations, industry averages and standard operating procedures mean nothing in a professional energy audit. Each building is unique and the recommended ECMs and projected payback periods are customized to each building system. It would be hazardous for a facility manager to rely on estimates of runtime, estimates energy savings, and estimates of ROI for an investment in energy conservation measures or mechanical/ electrical /plumbing improvements.

ASHRAE level I energy audit forecasts of energy savings should be coupled with a comprehensive evaluation of each building's investment opportunity in the executive summary of the energy audit report. The shorthand version is to address each ECM and grouping of ECMs with these metrics:

- Simple payback period = energy savings/ capital investment
- ROI = 1/simple payback period
- Long-term net present value (NPV) of the energy management investment versus alternative use of the funds
- The positive impact on the net operating income (NOI) leading to increased asset value or asset appreciation

Continued on page 7



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Data Should Drive Energy Upgrades

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Measure and Report Results

It is essential to understand and plan for the measurement and verification (M&V) of energy savings after a project is completed. If you are not going to keep score after a project, then it does not matter what you do; if, however, you are going to keep score, then everything matters. With that in mind, it's important to use conservative assumptions in the energy audits and sales proposals, since real-world project results should be reported hark to senior management via the formal M&V process.

A facility manager's reputation will be on the line based on ECM recommendations and results. Experience has shown that, over time, facility managers will get more energy efficiency projects funded when the M&V process documents that projects met or exceeded conservative ROI projections. It's better to have a project not sell than to be red-faced later and forced to report that the projected energy savings were not achieved. It is best to build energy savings projections on very conservative assumptions based on the data that is collected and analyzed.

Actual energy-savings performance is documented in the M&V process in several ways. First, there is simple year-over-year raw data formatting, which ignores all variables such as heating degree days, cooling degree days, building(s) hours of operation, additions or removals of equipment in building, and production data in manufacturing settings.

Production data, average occupancy, etc., will be of interest to senior management in reviewing the real-world performance of an energy project. A second or third version of the energy project performance data can also be presented with adjustments for heating and cooling degree days or for other factors. Other factors, such as changes in utility rates or replacing an old utility meter that was running slow (the new meter will show more consumption), can also affect M&V reporting. The goal is to fairly and accurately present the data without any bias or adjustments that could be challenged.

In energy savings performance contracting (ESPC), some forecasts of cost savings are based on assumptions of operational savings and stipulated savings for some ECMs. Both can become problematic in M&V reporting even though they may be correct based on the formal ESPC contract language, including any level of energy consumption or dollar cost savings guarantees.

With stipulated savings, the ESCO (Energy Service Co) and customer agree to the energy savings in units and dollars before the project begins and apply this as part of the annual savings calculations and part of any savings guarantee.

The customer agrees or stipulates that this "savings" occurs and that it does not need to be measured, metered, or estimated based on modeling.

Utility rates will increase or decrease over a 10-, 15-, or 20-year ESPC contract period, so those elements need to be considered before signing a long-term ESPC contract.

Not All Utility Data Created Equal

When an energy efficiency upgrade is being evaluated, care needs to be exercised in relying on utility databases intended for benchmarking energy use such as Energy Star Portfolio Manager. Benchmarking energy use in MM BTU per square foot of building space is becoming more common as a voluntary or mandatory annual report. Some utility data-based services maintain the real or raw data but report normalized data. Normalized energy consumption data may be adjusted based on heating degree days, cooling degree days, meter reading date, occupancy, production, or other factors.
Month after month and year after

year, data need to be reported accurately or at least provide some indication of whether the data is real or normalized. Many utility data bases fail to flag data that is obviously in error or is based on an estimate of missing data. Another factor is that utility bills themselves can be based on actual meter reading or estimated readings. Some utility meters are only read every other month to reduce the utility's meter reading expense, and some only provide an actual meter reading every six or 12 months. Facility managers should be aware of these variables and require any energy professionals they hire to properly report data,

— Richard Lubinski

Plan for M&V Expenses

Facility managers should plan and budget for M&V expenses as part of an energy efficiency project. Some utility or state demand side management (DSM) programs require M&V of actual energy savings to determine the level of DSM rebates or verify the accuracy of the energy audits and related DSM payments made. M&V should be part of every energy savings project.

Failing to provide M&V reporting on energy efficiency projects is a mistake for a facility manager's career. Company and nonprofit executives expect facility managers to provide M&V reporting even if the term is not used in the discussion. Businesses of all kinds are all about producing results. Senior management will not repeat investments in energy efficiency if they do not produce predictable results. The good news is that business will continue to fund energy efficiency projects when they meet or exceed the projected results. In some cases, business executives will encourage a higher level of investment in energy conservation since these investments can exceed the ROI of alternative uses of company funds.

Richard G. Lubinski, GEM, CM, CDSM, President of Think Energy Management LLC, an energy consulting firm. He can be reached at rick@think-energy.net

2015 Board Meeting**Schedule:**Feb 12thMar 19thMay 21stJune 18thSept 17thDec 10th

*Board Meetings
are held
in Columbus*

2015 Conference & Trade Show

Crowne Plaza N. Hotel

Oct 25th 5:00 pm**Conf. Committee meeting**

**Oct 26th & Oct 27th
Conference
&
Trade Show**

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our website!*

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A Note from the Editor:

Dear reader, OPFMA publishes the "SpotLight on Maintenance" for your benefit; for serving better your interests - your feedback is of a paramount importance!

Suggestions – Sharing Experiences – and Constructive Criticism are welcomed! By simply bringing in "SpotLight" topics and ideas of interest to you could be beneficial to many other readers.

Let Your Voice be Heard - Just drop a note at: editor@opfma.org or visit www.opfma.org and click on "Contact us" – I would be happy to bring your ideas and comments in The SpotLight!

Thank you,
Alexandra

Publication and Submission – Terms & Requirements

"Spotlight on Maintenance" is the official publication of the **Ohio Public Facilities Maintenance Association**, a 501(c) (3) not for profit organization for educational and professional development of public facilities maintenance employees.

It is published quarterly and distributed in the second half of the month of **March, June, September** and **December**.

A special edition would be added as events dictate.

All materials published are copyrighted. SpotLight on Maintenance Editor/publisher is Alexandra Schneider.

Deadline: Articles & Photos Submission is on the 1st Day of Month of Publication.

All documents must be submitted in Word format and sent as an e-mail attachment.

All photos and Ads must be in JPEG format and sent as an e-mail attachment.

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