WATTS HOT Newsletter®

YOUR SOURCE FOR ENERGY, TECHNOLOGY, SUSTAINABILITY & RESILIENCY

APOLLO Engineering Solutions®

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Congratulations to Lucas Metropolitan Housing Authority for 85 Years of Service to Toledo, Ohio

On January 24, 2019 Lucas Metropolitan Housing Authority (LMHA) in Toledo, Ohio celebrated its 85th year of contributing to the greater Toledo area, its residents and community. Ms. Demetria Simpson, LMHA's President and CEO welcomed speakers and guests to an evening event that highlighted LMHA's numerous community service programs over the years.

LMHA believes that housing is vital to their past, present and future! The agency creates quality housing opportunities and builds communities through collaborative partnerships. While stimulating economic growth, the LMHA empowers individuals and develops the neighborhoods of tomorrow for the people of today. The LMHA envisions a society that delivers on the promise of a quality life our veterans fought for, our seniors saved for, our young parents work for, and for which our children will remember us.

LMHA was established in 1933, and continues to provide affordable housing to adults, seniors, and children in its Public Housing, Housing Choice Voucher, mixed income and market rate housing units. LMHA also provides a myriad of programs and opportunities designed to improve the total quality of life for its residents, with the goal of achieving self-sufficiency. The programs and services result from successful collaborations with numerous community partners. LMHA's portfolio consist of 2,633 public housing units; 4,616 Housing Choice Vouchers; 267 Low-Income Tax Credit units; 190 market rate units; and 53 Homeownership properties. Approximately 17,500 people reside in LMHA properties. LMHA owns 14 community centers providing over 14 different services to residents and the surrounding communities. LMHA partners with all people and organizations willing to exchange ideas and efforts to improve affordable housing and enhance efforts to enhance Toledo, Lucas County, and the world.

Enlightened Energy Consultants (EEC) and Apollo Engineering Solutions (AES) were proud sponsors for the evening event.

UPCOMING EVENTS

- **National Facilities Management and Technology Conference**
  March 26-28, 2019
  Baltimore, MD
- **2019 NLIHC Housing Policy Forum**
  March 27-29, 2019
  Washington, D.C.
- **2019 PACENation Summit**
  April 3-5, 2019
  Austin, TX
- **NAHRO Washington Conference**
  April 8, 2019
  Arlington, VA
- **Novogradac 2019 Affordable Housing Conference**
  May 2-3, 2019
  San Francisco, CA
- **CLPHA Housing Is Summit**
  May 16-17, 2019
  Washington, D.C.

National Facilities Management and Technology Conference (NFMT)

March 26-28, 2019
Baltimore Convention Center, One West Pratt Street, Baltimore, MD 21201

The National Facilities Management and Technology (NFMT) Conference is a top-rated expo for facilities executives connecting you with technology and education to revolutionize the world of tomorrow. NFMT is the #1 meeting point for the top facilities executives. Professionals holding titles from all corners and spectrums of the facilities management industry look forward to this event. https://www.nfmt.com/baltimore

Join me, Dick Santangelo, at 2:45 – 3:45 p.m., Thursday, March 28, 2019, Room 327 for the session
"A New Funding Solution for Energy Infrastructure Replacement"

Asset Management, Energy and Utilities Management
A New Funding Solution for Energy Infrastructure Replacement
Richard Santangelo, President, CEO, Apollo Engineering Solutions, LLC.

Learning Objectives
1. Review an alternate approach to debt-financing or CapX to address infrastructure replacements.
2. Define the service approach compared to traditional infrastructure replacement programs.
AUDIENCE: BEGINNER CEU: 0.1

Session Overview: A New Funding Solution for Energy Infrastructure Replacement

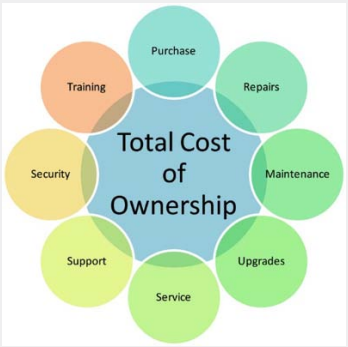
Faced with rising utility and deferred maintenance costs, and limited CapX Funds, how is a Facilities Manager to reduce utility costs and replace, upgrade energy capital infrastructure (elevators, roofs, etc.)? A pioneering solution is emerging within the energy rehab industry, fueled by new cloud-based technology and innovative capital financing.

The solution – a utility-based usage approach where a third party owns, operates, maintains and is responsible for the energy saving performance of the new equipment. The facility manager relies on the operating budget to a pay service fee; there is no debt. The result addresses energy infrastructure replacement, savings scarce resources for core business functions. Like utility services, the customer is charged only for the utility it uses.

"As a Service" is ideal for customers: with emergent energy capital needs (e.g., obsolete elevators); committed to sustainability and energy reduction; facilities as a non-core business function; looking for simple decision making; responsible for multiple locations; using long-term leases for facilities; and, that prefer Op-Ex / preservation of credit rating. This informal session will discuss the emerging topic of Energy Efficiency as a Service approach addressing ideas (pro and con) and compare other As-a-Service approaches to traditional debt-service financing approaches.

Investing in Infrastructure Replacement – Uncovering the Hidden Cost

How often has it occurred that residential infrastructure equipment such as a boiler, roof, elevator, cogeneration system has far exceeded its useful life and the choice of replacing the equipment becomes one of safety and reliability? Researching the installation and equipment cost is just the beginning of the journey. Often overlooked in the cost benefit analysis for new infrastructure equipment is the total cost of ownership (TCO). This article speaks to the TCO and its importance in the decision-making process.



Infrastructure is the term for the basic physical systems of a business or nation — transportation, communication, sewage, water and electric systems are all examples of infrastructure. These systems are high-cost investments and are vital to a country's economic development and prosperity. Likewise, elevators, boilers, roofs, windows, etc., are the critical infrastructure components of a residential building. Sometimes the life of a system can be prolonged through continuous, higher maintenance costs. Unintentionally, this approach can put the safety of residents at risk. Is this the best approach for dealing with equipment that has exceeded its useful life?

An infrastructure asset may be a good idea but not a good investment. Mass transit is a good idea, moving people more efficiently, but it is often a bad investment as most mass transit systems cannot cover capital and operational costs with tolls, tickets or similar user charges. Elevators move residents efficiently between floors, provide fast access to residents needing medical attention, but do they pay for themselves over their useful life? No one can argue that elevators in an elderly high-rise apartment building is essential.

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Infrastructure (Capx) funding provides the opportunity to invest in essential assets, such as elevators, roofs, boilers, energy systems, etc. They are often attractive to investors looking for predictable returns, as infrastructure projects are typically characterized by low levels of competition and high barriers to entry.

The demand for the essential products or services provided by infrastructure may be more stable and less sensitive to changes in price than non-essential products or services. Income from infrastructure typically comes from either: a return on assets determined by a utility regulator (e.g., water, electricity, gas). For example, property owners can realize utility savings from more efficient systems.

For Certain Assets, Purchase Price and Ownership Cost Can Be Very Different.

For discussion, the total cost of ownership (TCO) is an analysis meant to uncover all the lifetime costs that follow from owning certain kinds of assets. TCO is sometimes called life cycle cost analysis.

Asset ownership brings purchase costs; however, owning also brings costs due to installing, deploying, using, upgrading, and maintaining the same assets. These after-purchase costs can be substantial. For many kinds of assets, TCO analysis finds a significant difference between purchase price and total life cycle costs. And, the difference can be vast when property ownership covers an extended timespan. TCO analysis sends a powerful message to corporate buyers, capital review groups, and asset managers.

Consider TCO Instead of the Purchase Price When Making Purchase Decisions!

When did TCO become critical the decision-making process? Those who purchase or manage computing systems have had a keen interest in TCO since the late 1980s. IT industry analysts published studies showing a vast difference between IT systems prices and systems costs. These soon got the attention of IT vendor sales teams and marketers. Competitors of IBM, for instance, used their own TCO results to argue that IBM systems were overly expensive to own and operate. This argument is possible because the five-year total cost of ownership for substantial hardware and software systems—from any vendor—can be 5-10 times the hardware and software purchase price.

With sophisticated control system managing performance and operations from lighting, to environmental systems in a residential building, TCO analysis supports purchase decisions for a wide range of assets. These include especially items with significant maintenance and operating costs across ownership life. The total cost of ownership is at center stage when property owners face purchase decisions for large building infrastructure systems, vehicles, equipment, and roofs.

TCO for these assets is a central focus in:

- Budgeting and planning
- Asset life cycle management
- Prioritizing capital purchase proposals
- Evaluating capital project proposals
- Vendor selection
- Lease vs. buy decisions

Explaining TCO in Context

The total cost of ownership concept in context with related business concepts is fundamental to the fields of asset management (asset life cycle, ownership life, depreciable life, economic life, service life), budgeting (obvious cost, hidden cost, TCO cost, model resource base, activity base model) and cost accounting (cash flow estimates, incremental cash flow, avoided cost, cost savings, opportunity cost).

The TCO analysis continues by designing a comprehensive cost model that covers the TCO subject through ownership life while supporting the decision maker needs. Stepping from a complete inventory of "obvious" and "hidden" cost categories, to a comprehensive cost model, requires the analyst to look for specifics in these areas:

- First, the resources appearing in each of the cost categories.
- Second, activities due to ownership, in each of the cost categories.

Why should a property owner invest time and effort in going beyond the *list* of cost categories to organize them as a cost model? There are two reasons for the model:

1. First, remember that a "list" is only that. It does not by itself communicate *completeness*. In a successful TCO cost model; however, inclusiveness is self-evident to both the analyst and to those who use TCO results.
2. Second, the cost model structure provides a framework for a very informative kind of cost analysis. Sections below show how the cost model itself reveals spending issues that are not obvious in the TCO cash flow statement.

TCO Cost Model Example

The cost model in Exhibit 1 below is a two-dimensional matrix whose cells represent categories that could have cost impacts due to ownership. Following is an example of a TCO model for environmental control system acquisition.

COST MODEL	Acquisition Costs	Operating Costs	Change Costs
Software	Obvious costs	Obvious costs	Hidden costs
Hardware	Obvious costs	Obvious costs	Hidden costs
Personnel	Hidden costs	Hidden costs	Hidden costs
NW & Comm	Hidden costs	Hidden costs	Hidden costs
Facilities	Hidden costs	Hidden costs	Hidden costs

Exhibit 1 - TCO cost model for an environmental control system acquisition. Rows are resource categories and columns are system life cycle stages. The contents of each cell are individual resource items. Exhibit 2, below, shows typical cost items for two cells in the Exhibit 1 model.

Note that the vertical axis represents resource categories while the horizontal axis represents life cycle stages. The model design succeeds when it achieves two objectives:

- First, each axis covers the complete set of cost classes for one dimension: (1) Resources or (2) life cycle stages. Each includes all categories on that dimension useful to decision-makers and planners.
- Second, the cost categories (or classes) capture apparent costs and the less-obvious hidden costs.

The two axes should convey self-evident completeness. If they do, there should be no cost surprises later, during implementation. And, the analyst should never have to answer questions such as: Why didn't you include this or that?

Examples below show that the choice of cost categories for each axis gives the model power for analysis and communication. The TCO analyst continues by adding the *names* of resources to each cell. Resource items that go together in a cell have two characteristics:

- First, owners plan and manage together all resource items in a cell.
- Second, various resource items in a single cell may have the same **cost drivers**.

For a planning an environmental control system acquisition, two of the model's cells might hold the resource names in Exhibit 2:

Acquisition / Hardware Costs 2nd row, 1st column	Operating Costs / Personnel 3rd row, 2nd column
• Server system purchase • PC system purchase • Engineering workstation purchase • Storage space purchase • Other peripheral HW purchase	• Administrative labor – Systems Operators – Systems Programmers – Applications Programmers – Network admin labor – Storage Managers – IT Managers – Other Administrators • Troubleshooting labor • Continuing contract labor • Continuing training (professional)

Exhibit 2 - Resource items in two cost model categories. Other cells in the same model have similar resource lists. The full model helps assure TCO analysts and property owners that every relevant cost item due to ownership is in view. It helps show everyone that the analysis excludes costs not due to owning. These sections show how the model serves as a powerful tool for analyzing life cycle costs. The model serves as a powerful tool for analyzing and controlling life cycle costs.

Finally, the cost model helps assure all involved that scenario comparisons are fair and objective. One model can do this if the single model design covers all costs in all scenarios. Some items may have 0 values in one TCO scenario and non-zero values in others. Using one model with the same cost categories for all TCO scenarios shows everyone that comparisons between TCO scenarios are fair.

TCO Analysis Can Uncover "Hidden" Costs of Ownership

TCO can bring out so-called "hidden" costs of ownership. In this example, owners included all the essential costs from system acquisition, including labor costs for people who use or support the systems. When deciding whether to acquire a new system, it is easy to focus excessively on hardware and software costs. Leaders should focus instead, on the

Personnel costs that come with the system. These "People costs" could be as high as 68.8% of the TCO. How the firm trains, employees, and manages these employees will ultimately play a more significant role in determining the actual cost of ownership than other factors, such as the choice of hardware vendor or software vendor.

Potential Problem to Look For

TCO can help spotlight potential cost problems before they become real problems. In the IT world, for instance, change costs can often exceed forecast and budget. These typically include expenses for upgrading, adding capacity, reconfiguring, adding users, migrating to different platforms, etc.

The change cost items in this model could appear instead under either of two cost column headings, Acquisition or Operating Costs. Here, however, the analysts focused on change costs by giving them a Change Cost column of their own. It is easier to measure, plan, and control expenses specifically due to change. Note especially in this example, change costs can represent between 35 and 40% of total cost of ownership in both scenarios.

TCO is Blind to Business Benefits (Except for Cost Savings and Avoided Cost)

TCO analysis is not a complete cost-benefit analysis because TCO tries to uncover ownership costs, but it is blind to other kinds of business benefits due to acquisitions, projects, or initiatives. Since TCO sees only costs, it takes no account of benefits such as faster information access, greater operational capability, competitive gains, or higher product quality.

When TCO is the primary focus in decision support, decision-makers are assuming:

- Benefits other than cost savings are the same for all options; and,
- The options differ only in *cost*.

TCO analysis itself says nothing about the validity of that assumption. When the property owner believes different solutions may bring different business benefits, a complete cost-benefit business case analysis may be appropriate. In brief, TCO analysis can find only two kinds of business benefits: cost savings and avoided costs. Cost savings refers to a cost object already incurring expenses or expenditures the firm is already paying. An automobile owner who trades the vehicle for a more fuel-efficient car, while maintaining the same driving habits, can expect a cost saving in fuel costs. An avoided cost is also a cost saving, but the savings anticipates future spending. Preventive maintenance for the vehicle—such as regular oil changes—avoids the future cost of replacing an engine. The avoided cost is a genuine cost because the replacement charge is coming if the driver omits maintenance.

Either benefit can show up when comparing TCO for different scenarios. The example above shows, for instance, that when TCO is less under a "Proposal" scenario and greater under a "Business as Usual" scenario, the results are cost savings under the "Proposal" scenario. Asset managers strive to ensure that the asset reaches the end of its useful life, pouring in thousands or possibly millions of wasted dollars to achieve this goal. What if the asset/property manager strove instead to provide the best decision based on data and knowledge about the asset? Implementing total cost of ownership allows for a total awareness of the investment of the asset.

Total cost of ownership is not a new concept, yet, organizations are slow to implement. TCO requires skilled leadership to communicate information about an asset, and to make this information transparent to the organization. Integrating facilities organization with TCO can prove to be challenging; silos and “business as usual” methodologies are not easily transformed.

Thanks to the following authors whose research and articles significantly contributed to this discussion:

- *Marty Schmidt, President and Owner at Solution Matrix Ltd*
  Founded Solution Matrix Ltd in 1994. His company is a management consulting and publishing firm dedicated to helping executives, managers, consultants, and other professionals understand the impact of management actions on business performance. Solution Matrix Ltd. is a recognized authority on business case analysis, financial justification, total cost of ownership, and return on investment analysis.
- *Douglas K. Christensen, The “Total Cost of Ownership.” Facilities Manager. Volume 32, No 4. July–August 2016.*
- *Supply Chain Management: From Vision to Implementation - PowerPoint PPT Presentation, presented by PowerShow.com*
- *Total Cost of Ownership – Wikipedia, https://en.wikipedia.org/wiki/Total_cost_of_ownership*

Property Assessed Clean Energy (PACE) Is It Right for Your Affordable Housing Project?

Property Assessed Clean Energy (PACE) is a financing mechanism that enables low-cost, long-term funding for energy efficiency, renewable energy and water conservation projects. PACE financing is repaid as an assessment on the property's regular tax bill and is processed the same way as other local public benefit assessments (sidewalks, sewers) have been for decades. Depending on local legislation, PACE can be used for commercial, nonprofit and residential properties.

How does PACE work?

PACE is a national initiative, but programs are established locally and tailored to meet regional market needs. State legislation is passed that authorizes municipalities to establish PACE programs, and local governments have developed a variety of program models that have been successfully implemented. Regardless of model, several keystones hold true for every PACE program.

- PACE is voluntary for all parties involved.
- PACE can cover 100% of a project's hard and soft costs.
- Long financing terms up to 20 years.
- Can be combined with utility, local and federal incentive programs.
- Energy projects are permanently affixed to a property.
- The PACE assessment is filed with the local municipality as a lien on the property.

Why has PACE become so popular?

Property owners have been attracted to PACE because they can fund projects with no out-of-pocket costs. Since PACE financing terms extend to 20 years, it is possible to undertake deep, comprehensive retrofits with meaningful energy savings and a significant impact on the bottom line. The annual energy savings for a PACE project usually exceeds the annual assessment payment, so property owners are cash flow positive immediately. That means increased dollars can be spent on other capital projects, budgetary expenses, or business expansion.

Local governments love PACE because it is an Economic Development initiative that lowers the cost of doing business in their community. It encourages new business owners to invest, and creates jobs using the local workforce. PACE projects also have a positive impact of air quality, creating healthier, more livable neighborhoods.

PACE programs offer long-term private financing for renewable energy and energy efficiency upgrades to homes and businesses. PACE-enabling legislation is active in 36 states plus D.C., and PACE programs are now active (launched and operating) in 20 states plus D.C. Residential PACE is offered in California, Florida, and Missouri. Click your state at https://pacenation.us/pace-programs to find PACE programs operating in your area.

Affordable housing properties across the country can save money, increase bottom-line profitability, and improve quality of life for low-income communities by taking advantage of the Property Assessed Clean Energy (PACE) Program. As an innovative, market-based financing program, PACE enables property owners to obtain low-cost, long-term financing for energy and water efficiency, and on-site generation improvements to commercial, industrial, and multifamily properties. Municipalities and counties work with private sector lenders to fund clean energy projects, using a property assessment that ties the financing obligation to the property itself.

The lack of energy and water efficient solutions in affordable multifamily housing properties has great implications for tenants, and landlords and property owners. High energy and water bills can force families to choose between keeping the lights on and other daily necessities. Property owners face rising operational costs due to high utility bills.

Fortunately, since PACE allows property owners to finance up to 100% of upfront costs related to energy and water saving measures, the affordable housing sector can leverage PACE as a financing tool for improving efficiency. These investments provide a myriad of benefits, including the potential to:

- Reduce a property's operating costs;
- Increase housing affordability by reducing residents' utility costs;
- Free up capital that could be used in other upgrades and/or other properties;
- Reduce the subsidy per unit required to make a project financially viable;
- Reduce pollution and energy and water waste; and,
- Improve the living conditions of tenants.

The greatest opportunity lies in Public Housing Authorities (PHA) participating in the U.S. Department of Housing and Urban Development's (HUD) Rental Assistance Demonstration (RAD) program. Properties undergoing RAD conversions can leverage private debt and equity to make property-wide improvements, including efficiency retrofits. This is a nationwide initiative by HUD, and the transition presents a prime opportunity to ensure affordable housing properties take advantage of PACE.

Properties funded by the U.S. Department of Agriculture Rural Development (USDA RD) programs can utilize PACE financing. Many of these properties need repair. The RAD conversion program and USDA RD properties are just two of the many funding structures that could take advantage of PACE financing.

PACE financing provides a unique opportunity for the affordable housing sector. By investing in distributed generation and energy and water efficiency, property owners not only increase their bottom-line profitability, but also help low-income communities save money on their electric and water bills. Armed with the right tools and information, governments, property owners, and PACE administrators across the country can maximize the potential of PACE, leading to cleaner, more affordable housing for all.

The incentives to invest in energy and water efficiency measures and distributed generation vary depending on whether the property owner is a for-profit or a mission-driven (non-profit) organization. Regardless, investing in affordable housing energy and water saving solutions, particularly in times of volatile utility costs and more frequent extreme weather conditions, improves the living conditions of tenants, makes housing more affordable by reducing energy and water costs, and increases property owners' net operating income by reducing operating costs – especially when dealing with an inventory of old properties.

Developers of affordable housing face significant costs in building and rehabilitating properties. Usually, available capital is used for property acquisition, project construction, developer fees and design fees, construction loan interests, permanent financing, reserves, and project management. Sources of funds include tax credits, grants, and debt. However, there is a caveat for tax credits and grants. There is only a limited amount of funds available, making applications competitive and exhaustive. In terms of debt a project can take, the size of the loan a bank will make depends on the project's net operating income (NOI), or the money it expects to bring in from rent after accounting for operating expenses.

Investments in energy and water efficiency generate bottom-line savings by reducing utility costs, benefiting both tenants and property owners. Property owners can leverage programs like PACE to finance 100% of the costs related to energy and water efficiency retrofits and distributed generation investments, which have the potential to free up capital that could be used for other upgrades or properties, and/or reduce the subsidy per unit required to make a project financially viable by increasing the project's NOI.

Rehabilitation projects generally include exterior and interior improvements, additional modernizations, and energy and water related improvements. While there are Federal, State, and local programs available for the rehabilitation of affordable housing properties, industry experts indicate funds such as Low-Income Housing Tax Credits (LIHTCs)

normally cover 60-75 percent of the investment when 9.0% tax credits are used to finance improvements, or 30-40% if 4.0% tax credits are used. Developers must seek additional capital to cover the remaining cost of an investment or reduce project costs to reflect available funding. Because of these factors, energy and water saving measures are often eliminated from the rehabilitation proposal, and opportunities to lower future operating costs are lost. This is especially unfortunate since the increasing burden of high utility costs is a lose-lose proposition for tenants, property owners, and public agencies providing rental assistance programs.

Properties in RAD Conversion

In 2012, HUD launched the Rental Assistance Demonstration (RAD) program to address the $26 billion nationwide backlog of deferred maintenance in public and assisted multifamily housing projects. RAD allows Public Housing Authorities (PHAs) to leverage public and private debt and equity by shifting units from the federal public housing program into the Section 8 program, which involves the conversion of public housing subsidies into rental assistance contracts, either in the form Project-Based Vouchers (PBVs) or Project-Based Rental Assistance (PBRA). To access private capital, the ownership of the assets or properties is transferred to third-party, non-governmental entities, which makes properties in RAD conversion eligible for PACE.

During the conversion process, projects must secure financing from multiple sources to fund property-wide improvements, including energy efficient retrofits. In Texas, as of July 2016, 20 projects (~ 2,000 units) had been converted, 79 projects (+ 6,000 units) had received Commitments of Housing Assistance Payments (CHAP) awards, and approximately 6,500 units had received Multiphase and Portfolio awards. The classification represents simply the timing at which projects finalize the conversion.

Properties granted multiphase and portfolio awards are currently identifying needed improvements and sources of funding. The introduction of PACE as a complementary funding tool for energy and water efficiency retrofits could be attractive.

Given the cap of 455,000 units that can be converted nationwide, PHAs have a limited window of time to secure the capital needed to fund the improvements.

Challenges

Despite the many benefits of PACE financing to property owners and tenants, barriers to the widespread use of PACE within the affordable housing sector remain, such as:

- **Lack of information and experience with new PACE programs:** Despite the well-known benefits that investments in energy and water efficiency measures entail, property owners of affordable housing properties are somewhat reluctant to use innovative sources of capital, such as PACE, due to the, often, unknown approval process created by the public agencies subsidizing this market.
- **Energy and water efficiency measures are often eliminated from a rehabilitation proposal:** Despite the low-cost funding mechanisms available for the rehabilitation of affordable housing properties, and the resulting benefits of future operating cost reductions and avoidance, energy and water efficiency measures are often eliminated from a rehabilitation proposal to reduce project costs to reflect funding and/or to meet debt coverage ratios.
- **Many stakeholders are unaware of the dynamics of investing in energy and water saving retrofits in properties with utility allowances:** Many believe that in tenant-metered buildings, tenants receive the cost savings from reduced utility bills. However, in tenant and sub-metered buildings, savings can sometimes transfer to or be shared with property owners. This depends on the public agency providing assistance and the program in place.

- **Conflicting incentives to pursue energy and water efficiency investments:** PACE Financing has the potential to increase properties' values, which creates a conflict of interests between for-profit property owners and cities looking to preserve affordability. For some for-profit affordable housing owners, increased property values could provide an additional incentive to exit a subsidy program and flip the property to a market-rate structure (also called unsubsidized housing).

- **Federal Housing Finance Agency (FHFA) guidelines:** Nationwide, the FHFA expressed concern regarding the first lien position that a PACE assessment creates. Although PACE loans may promote clean energy projects, they present several issues for lenders. The priority lien status of PACE loans can erode the value of a lender's security interest in a purchase-money mortgage. In 2011, it issued a directive prohibiting Fannie Mae and Freddie Mac from purchasing homes with a PACE senior lien. Through Mortgagee Letter 2017-18, HUD ended its policy of allowing FHA insurance for mortgage loans secured by properties encumbered with Property Assessed Clean Energy ("PACE") obligations. FHA's new policy prohibiting PACE obligations with FHA-insured loans, which becomes effective for loans with FHA case numbers issued on or after January 7, 2018, reverses Mortgagee Letter 2016-11 short lived Obama era policy that permitted lenders to originate FHA-insured loans involving PACE obligations.

- **Department of Housing and Urban Development related guidance includes:** https://www.hud.gov/program_offices/administration/hudclips/letters/mortgagee/2017

  - **Mortgagee Letter 2017-01:** notice guides owners and management agents (O/As) for determining if the PACE program in their locality meets the standards for compatibility (Assessment Procedures) with the Department of Housing and Urban Development's (HUD) multifamily housing programs.

  - **Mortgagee Letter 2017-06:** notice provided policies and procedures for the servicing of FHA-insured mortgages on properties encumbered with a PACE obligation.

  - **Mortgagee Letter 2017-18:** notice transmits revised policies for insuring mortgages secured by Single Family 1-4-unit properties encumbered with Property Assessed Clean Energy (PACE) obligations.

FHA is concerned about the potential for increased losses to the Mutual Mortgage Insurance Fund due to the priority lien status given to such assessments with default. FHA is also concerned with the lack of consumer protections associated with the origination of the PACE assessment, which are far less comprehensive than that of traditional mortgage financing products. FHA's involvement with accepting properties with PACE assessments may indirectly help to overshadow potential consumer abuses.

Although the economic incentives to pursue these investments depend somewhat upon the utility allowance and how properties are metered, the environmental benefits and potential savings provide enough motive for property owners to invest in energy and water efficiency retrofits even when there is no direct monetary benefit to property owners. The improved quality of the property and living conditions benefits the entire community.

Thanks to the following authors whose research and articles contributed to this discussion:

- *Environmental Defense Fund's Study on "PACE Financing Opportunities in the Affordable Housing Sector." Laura Sanchez is a Master of Public Policy candidate at UC Berkeley's Goldman School of Public Policy focusing on energy markets and sustainability. She has conducted research for American Jobs Project, a partnership between the Berkeley Energy & Climate Institute and the US DOE and DOC. Before graduate school, she worked in the finance industry for over six years.*

- *Ben Lane is the Editor for HousingWire. In his role he helps set a leading pace for news coverage spanning the issues driving the U.S. Housing economy and helps HousingWire's overall direction. He is a graduate of the University of North Texas.*

- *Mayer-Brown, Consumer Financial Services Review, "FHA Changes Course on PACE Obligations" by Krista Cooley & Joy Tsai, December 22, 2017*

Energy Champion Podium – Winter 2019

The *Watts Hot Newsletter*™ is proud to select the **Lucas Metropolitan Housing Authority** (LMHA) for its **Energy Champion Podium**. LMHA's was selected for its work on securing and successfully implementing an innovative Energy Performance Contract.

LMHA contracted for Energy Performance Contracting at most of its properties with Johnson Controls International. Energy Performance Contracting (EPC) is an innovative financing technique that uses cost savings from reduced energy consumption to repay the cost of installing energy conservation measures. This innovative financing technique has allowed LMHA to achieve energy savings without up-front capital expenses.

LMHA had water and electricity saving measures installed at most of its developments along with other long-term savings such as window and mechanical system replacements. These energy improvements not only improved the comfort of residents but will also result in reduced utility costs and resource usage across the agency.

As a Better Buildings Challenge partner, LMHA has committed to a 20% Reduction in energy by 2026 across its 2.3 million square feet of federal public housing properties. The LMHA will reach its goal through implementing an Energy Performance Contract (EPC). Through the EPC, the benefits realized will be lowering the energy consumption and reducing utility costs. The energy conservation measures (ECMs) installed provide the maximum energy savings to LMHA, which will help the agency to make critical, long-term infrastructure upgrades to the LMHA's portfolio; improve resident comfort; and enhance the marketability of LMHA's properties at 22 of the developments of the Agency's portfolio. Energy upgrades include LED lighting, water conservation measures, HVAC system replacement upgrades, and window replacement systems. Accurate monitoring and tracking measures are planned to manage the EPC program performance. Check out the video link, illustrating the EPC benefits to residents and cost savings to LMHA.
https://plummovingmedia.box.com/s/a17zfwlkkgvqdufy27ljoadsqv7jrchi

Portfolio Energy Performance

Better Buildings Challenge Partners strive to decrease portfolio-wide source energy use intensity (EUI) and to increase the percent improvement compared to a set baseline. Lucas MHA's portfolio consists of over 32 buildings and 2.3 million square feet. They have improved energy performance by 12% from a 2015 baseline, making progress towards a goal of 20% by 2026. Energy savings have been achieved through an Energy Performance Contract. Through simple upgrades to water saving plumbing fixtures and LED lightbulbs LMHA has seen remarkable electric, gas and water savings.

Energy Performance by Property

Looking at the percent improvement in energy performance across all facilities can provide insight into how an organization is saving energy. Lucas MHA has achieved energy performance improvement of greater than 10% at seven of its properties.

Enlightened Energy Consultants (EEC) is the owner's consultant representative for the Lucas Metropolitan Housing Authority.

Watts Hot at HUD

PIH Notice 2018-20 and legislation S-2155 provide important opportunities for a Public Housing Agency's energy infrastructure replacement program.

PIH Notice 2018-20, Partnering with utility companies on Energy Performance Contracts (EPC), was issued on November 6, 2018, The Notice supplements Notice PIH 2011-36 and update guidance on implementing EPCs at Public Housing Authorities (PHAs). The Notice introduces a new initiative called the EPC Utility Partnership Program (UPP). EPC-UPP was created by HUD to encourage more PHAs, especially small- and medium-sized PHAs to consider the potential benefits of implementing an EPC in partnership with utility companies. Notice also includes a new simplified approval and verification process for low-risk EPC projects. https://www.hud.gov/program_offices/public_indian_housing/publications/notices

At the heart of the Notice is HUD's concern that only a few PHAs have executed EPCs, and most of those EPCs have been implemented by large PHAs utilizing Energy Service Companies (ESCOs) to facilitate the process. A smaller set of PHAs have self-developed and self-managed EPCs. The reasons so few small- and medium-sized PHAs have implemented EPCs may be due to a variety of factors include limited resources to manage the EPC project, a lack of familiarity with the EPC process, and difficulty securing financing for smaller projects.

The EPC-UPP process with a utility company is like the process for PHAs pursuing an EPC with an ESCO. If a PHA selects a utility company, shortly after award, the utility company will oversee or manage an investment grade energy audit (IGEA); help to secure project financing; oversee implementation of the EPC; and, support the PHA in performing Measurement and Verification (M&V) and other associated responsibilities. The utility company may subcontract work to a qualified ESCO selected through a competitive process.

For a PHA considering an EPC-UPP, several requirements relevant to EPC utility partnerships include:

- **Procurement Requirements:** Utility companies must be selected through a competitive solicitation process. PHAs must follow all standard procurement procedures under 2 CFR part 200 and State and local requirements, but may consider these exceptions:
- **Intergovernmental Agreements:** Under 2 CFR 200.318(e) and Chapter 14.2 of the HUD Procurement Handbook, PHAs may enter into intergovernmental procurement agreements in which a PHA can use an existing contract mechanism in use by another state or local entity, without going through a separate competitive procurement process. If a utility company already has EPC contracts in place with other state or local entities (e.g., schools or hospitals) or another PHA in its service territory, the utility company may include other PHAs in its existing procurement contract provided it meets the requirements of 2 CFR part 200and state and local laws. Intergovernmental agreements are subject to review and approval by HUD's Office of General Counsel.

The Notice also speaks to simplified process for low risk EPC projects. Through the Notice, HUD is also introducing a modified EPC process for projects that present a reduced risk for both the PHA and HUD. Subject to approval by HUD, any PHAs implementing EPCs that meet all these criteria may be eligible for this new process:

- Total project costs, including financing, do not exceed $275,000. The $275,000 threshold shall escalate 3% annually starting in FY 2019
- Project has a repayment period of not more than 5 years
- Project is implemented by a PHA with less than 250 units
- Debt-to-savings ratio for the project is 75–85%
- Project elects to receive the Add-On Subsidy and/or the Resident Paid Utility incentive (not the Frozen Rolling Base) and agrees to use M&V method - Option A, stipulated energy savings, to calculate the incentive
- PHA must also have a current and effective Declaration of Trust on all property subject to the EPC and meet all other requirements for an eligible EPC as enumerated in Notice PIH 2011-36 and any successor notice.

EPC projects that meet the requirements above also may be eligible for a streamlined review and application process. For eligible projects, the Energy Center will target 45 business days to either approve/reject the project and/or provide written feedback to the PHA requesting additional information.

In addition, approved projects that meet the above criteria may also utilize a modified M&V process. These projects will complete a normal M&V report for the first full year of project performance. However, in subsequent years, provided the project continues to generate enough savings to repay third-party debt, the **PHA will not be required to submit formal M&V reports.** Instead, the **eligible PHA can utilize Energy Star Portfolio Manager to monitor future savings.** Each year, the PHA will use the Portfolio Manager to simply submit to HUD its energy and water benchmarking score, and/or other metrics, as requested.

For additional information or questions regarding this notice, please contact Allison Ackerman at Allison.L.Ackerman@hud.gov or 202-402-5445.

S-2155 provides additional opportunities for small PHAs (550 units or less). On January 3, 2018, S-2155 amended Title I of the United States Housing Act of 1937 (42 U.S.C. 1437 et seq.). https://www.congress.gov/bill/115th-congress/senate-bill/2155/text

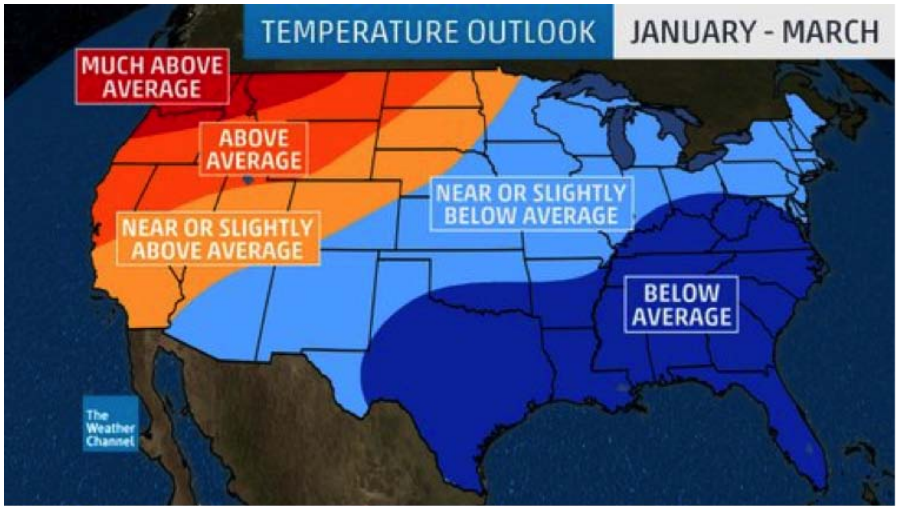
Sec. 209 of S-2155 specifically speaks to rural, small PHAs. A small PHA is defined as a PHA whose sum of the number of public housing dwelling units administered by the agency and the number of vouchers under section 8(o) administered by the agency is 550 or fewer. A rural PHA is defined as a county neither in a metropolitan statistical area nor in a micropolitan statistical area adjacent to a metropolitan statistical area, as those terms are defined by the U.S. Office of Management and Budget and as they are applied under applicable Urban Influence Codes (UICs), established by the United States Department of Agriculture's Economic Research Service (USDA-ERS). Refer to 1026.35(b)(2)(iv)(A) of title 12, Code of Federal Regulations. https://www.govinfo.gov/app/details/CFR-2014-title12-vol9/CFR-2014-title12-vol9-sec1026-35

Section 9(e)(2) of the United States Housing Act of 1937 (42 U.S.C. 1437g(e)(2)) is amended by S-2155. Activity under S-2155 legislation related energy conservation is not considered an EPC. Under S-2155, a small PHAs may:

- Freeze its consumption levels for a period, at the discretion of the small public housing agency, of not more than 20 years based on the small public housing agency's average annual consumption during the 3-year period preceding the year in which the election is made (in this subparagraph referred to as the 'consumption base level').
- Adjust consumption base level with HUD approval to account for an increase or reduction in units, a change in fuel source, a change in resident controlled electricity consumption, or for other reasons.
- Accrue savings; and the PHA may use savings **for any public housing purpose** at the discretion of the small public housing agency.
- Use energy services at discretion of the PHA. PHA is not required use third party services
- Use **sole discretion to determine the source, terms, and conditions of any financing** for its energy conservation program.

The amendments made by S-2155 subsections (a) and (b) was required to take effect 60 days after the date (January 3, 2018) of enactment of the Act. HUD is developing implementing guidance.

Utility Forecast for Spring 2019



Unfortunately, the Department of Energy's, Energy Information Agency (EIA) predictions reported in the Fall edition of *Watts Hot Newsletter*™ have come to pass. Most parts of the country are suffering from winter ice and snow storms, making EIA's predictions for a colder than normal winter, a reality.

Weather Channel reports that temperatures are expected to be below average overall from the South to the mid-Atlantic from January through March 2019. Temperatures are forecast to be near-average or slightly colder from the Southwest to the central Plains, Midwest and Northeast. Any above-average temperatures will likely be confined to the West and Northwest during the first three months of the new year. Above-average warmth, by winter standards, is expected from Northern California to parts of the northern Plains, with temperatures even farther above average forecast in the Pacific Northwest. The magnitude/flavor of El Niño event and expected high-latitude blocking associated with the solar minimum (and backed up by the November blocking) add up to heavily skewed odds toward a colder, stormier late-winter period. Reflected in the weather is the higher consumption of natural gas, oil and electricity.

Short-Term Outlook

Natural Gas

Withdrawals from natural gas storage fields in the Midwest contributed to the largest net withdrawal of working natural gas in the Lower 48 states so far during the 2018–19 heating season. High natural gas storage withdrawals in the Midwest were driven mostly by increased heating demand for natural gas because of below-zero windchill temperatures and congested natural gas pipelines in the upper Midwest. Besides regional storage withdrawals, the Midwest relied significantly on natural gas inflows from other parts of the Lower 48—particularly the Northeast region—to meet regional natural gas demand, according to S&P Global Platts. On January 30, 2019, natural gas consumption totaled 37.9 Bcf, topping the previous largest single-day natural gas consumption of 32.0 Bcf on January 6, 2014, during a polar vortex event, according to S&P Global Platts. Natural gas consumption has increased for all primary energy consumption sectors: residential/commercial, electric power, and industrial. Space heating needs for residential/commercial customers contributed to much higher natural gas consumption.

- The Henry Hub natural gas spot price averaged $3.13/million British thermal units (MMBtu) in January, down 91 cents/MMBtu from December. Despite a cold snap in late January, average temperatures for the month were milder than normal in much of the country, which contributed to lower prices. EIA expects strong growth in U.S. natural gas production to pressure prices in 2019.

Oil

Brent crude oil spot prices averaged $59 per barrel (b) in January, up $2/b from December 2018 but $10/b lower than the average in January of last year. EIA forecasts Brent spot prices will average $61/b in 2019 and $62/b in 2020, compared with an average of $71/b in 2018. EIA expects that West Texas Intermediate (WTI) crude oil prices will average $8/b lower than Brent prices in the first quarter of 2019 before the discount gradually falls to $4/b in the fourth quarter of 2019 and through 2020.

Electricity, Coal, Renewables, and Emissions

EIA expects the share of U.S. total utility-scale electricity generation from natural gas-fired power plants to rise from 35% in 2018 to 36% in 2019 and to 37% in 2020. EIA forecasts that the electricity generation share from coal will average 26% in 2019 and 24% in 2020, down from 28% in 2018. The nuclear share of generation was 19% in 2018 and EIA forecasts it will stay near that level in 2019 and in 2020. The generation share of hydropower is forecast to average slightly less than 7% of total generation in 2019 and 2020, like last year. Wind, solar, and other nonhydropower renewables together provided about 10% of electricity generation in 2018. EIA expects them to provide 11% in 2019 and 13% in 2020.

- **Renewables:** EIA expects average U.S. solar generation will rise from 265,000 megawatthours per day (MWh/d) in 2018 to 301,000 MWh/d in 2019 (an increase of 14%) and to 358,000 MWh/d in 2020 (an increase of 19%). These forecasts of solar generation include large-scale facilities and small-scale distributed solar generators, primarily on residential and commercial buildings.

- In 2019, EIA expects wind's annual share of generation will **exceed** hydropower's share for the first time. EIA forecasts that wind generation will rise from 756,000 MWh/d in 2018 to 859,000 MWh/d in 2019 (a share of 8%). Wind generation is further projected to rise to 964,000 MWh/d (a share of 9%) by 2020.

EIA estimates that U.S. coal production declined by 21 million short tons (MMst) (3%) in 2018, totaling 754 MMst. EIA expects further declines in coal production of 4% in 2019 and 6% in 2020 because of falling power sector consumption and declines in coal exports.

After rising by 2.8% in 2018, EIA forecasts that U.S. energy-related carbon dioxide (CO2) emissions will decline by 1.3% in 2019 and by 0.5% in 2020. The 2018 increase largely reflects increased weather-related natural gas consumption because of additional heating needs during a colder winter and for additional electric generation to support more cooling during a warmer summer than in 2017.

Contact Us

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