

Fall 2016 | Volume 1, Issue 1

Doctors of Energy to be in the Big Easy

You've probably seen the white lab coats, the crowds and excitement wherever they appear. Yes, you guessed it; the Doctors of Energy are back! And, they are heading to New Orleans to be at the NAHRO National Conference and Exhibition, October 14-16! Ready for an *Energy Check-up*?



Meet the Doctors of Energy
Ken Loar, Dick Santangelo, Mike Nail

Dick Santangelo, President and CEO of Apollo Engineering Solutions, Michael Nail, President and CEO of Enlightened Enterprises, and Ken Loar, President of Ken Loar and Associates, AKA as the *Doctors of Energy*, will be on hand at the Conference to answer your pressing energy questions and prescribe some practical, energy saving solutions to help your property portfolio become healthier, more energy efficient, more sustainable and resilient.

Whether you have questions about energy performance contracting, RAD, utility allowances, finding and procuring the lowest rates for natural gas and electricity, staying compliant with HUD energy regulations or if you just want to learn about some of the newest, exciting, energy saving breakthroughs and incentives, the Doctors can help you. With their hands on the pulse of the Energy Industry, the Doctors of Energy are energy experts and available for a free initial consultation.

The Doctors of Energy will appear at Booth 417 in the Exhibit Hall of the NAHRO Conference with their world class energy engineering partner, 2rw Consulting Corporation, throughout the Conference. Stop by our operating table in New Orleans.

Don't miss this opportunity to get your *Energy Check-up*, learn something new, have fun and be entertained by the Doctors. The Doctors of Energy look forward to seeing you in New Orleans!

Got a question or energy issue that can't wait for New Orleans, email your energy question or issue now to connect with one of the Doctors at wattshotnewsletter@gmail.com.

UPCOMING EVENTS

- » **NAHRO 2016 National Conference and Exhibition**
October 14-16, 2016
New Orleans, LA
- » **DOE 2016 Technology Development Workshop**
November 16-17, 2016
Denver, CO
- » **PHADA Commissioners' Conference 2017**
January 8-11, 2017
Orlando, FL
- » **ACEEE Hot Water Forum**
February 26-27, 2017
Portland, OR
- » **PHADA 2017 Washington Conference**
March 26-28, 2017
Arlington, VA
- » **2017 Annual Convention & Exhibition**
April 30 - May 3, 2017
Chicago, IL
- » **Better Buildings Summit**
May 15-17, 2017
Washington, DC

Roof Leaking? In Need of a Roof Replacement?

What if a roof replacement could reduce your energy costs and pay for itself in less than 7 years?

PHASE CHANGE MATERIALS

Phase change materials are redefining roofing industry technology. Imagine a material that can absorb heat, hold it until it is needed and release the heat when the temperature in a room falls below a desired temperature level. Combining the energy savings benefits of phase change materials (30, 40, 50 percent depending on conditions) with a wind-vent system to enhance the structural integrity of your roofing system can guarantee your 25-year system and is paid for in as little as 7 years.

PHASE CHANGE MATERIAL APPLICATIONS

Phase change material mats are a building product built around a fundamental property of nature: the natural tendency of materials to absorb heat when they melt (phase change from solid to liquid/gel) and to release heat when they solidify (phase change from liquid/gel to solid). When these phase change materials are placed in quantity into the structure and/or envelope of a building, they will naturally absorb heat or air condition the building during the day and release heat at night. As the phase change material transitions from solid/liquid or liquid/solid, it maintains the same temperature until complete transition has occurred. By incorporating phase change materials that will change its phase at standard building temperatures, Phase change material provides a unique strategy for keeping buildings at desired temperature with little need for heating or air conditioning. Phase change materials can be integrated into the wall, roof, ceiling, attic and floor assemblies of new or rehabbed buildings helping impact overall R-value and thermal performance of the building envelope. This impact is unique compared to fiberglass insulation, which only blocks or slows down heat flow. By changing the delta-T between indoor and outer wall temperatures, a significant reduction in building heat flux is achieved since phase change materials “store” energy passing through the assembly, instead of slowing the flow of energy.

Phase change materials can also be installed over ceiling tiles or into interior partitions to help alleviate internal load concerns. Case studies have shown that applying phase change materials over ceiling tiles of high internal load buildings can contribute to double digit energy savings. Phase change technology has been used for years in limited quantity within the building sector with much success from a performance perspective; however, most phase change technologies have been met with significant barriers to main stream adoption because of these factors:

- Cost of material
 - Fire testing issues
 - Environmental impacts of material sourcing
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TECHNOLOGY IMPROVEMENTS

Improved technology within the last 10 years of phase change material formulation addresses these (issues) and roofing and building envelope design engineers and contractors are taking notice. The phase change materials market size is virtually limitless, containing at a minimum all new and existing buildings worldwide. In addition, because of the significant impact that phase change materials have on building energy efficiency, it is estimated that the total impact of adding phase change materials into all U.S. buildings would cause a saving of over 9.5 Quads of energy or 10% of the total U.S. energy consumption. This amount exceeds all overseas oil imports.

The primary savings for using phase change materials occurs in multiple ways. The primary savings is the reduction in heating and cooling costs, because of storing heat lost to the outdoors (winter) or penetrating the inside (summer) and releasing it to the cooling interior or outdoors later. Such a stabilization in temperature can reduce HVAC run times. Secondary savings occur in commercial and industrial buildings due to peak load reductions and shifting. This results in a reduction in demand charges by in some test cases up to 99%. Other cost savings can occur because of reduction in insulation R-value depths in wall assemblies designed above code levels, and reduction in HVAC equipment sizing.

IMPROVED PRICING

Improving price points have come down significantly, so such an endeavor would not only be feasible but can be accomplished with a return in investment of (usually) less than 7 years without government subsidies. The Federal government and in particular the General Services Administration are looking at the use phase change materials in Federal buildings.

IMPACT OF RAIN AND WIND

Let's add to the roof discussion, the effects of wind. When wind hits the side of a building, it creates an updraft. When it meets the horizontal air stream, the updraft violently tumbles, creating a horizontal vortex similar to a tornado. This wind vortex creates a negative pressure "vacuum" that can tear off the roof assembly. Add moisture to the problem. Now we have internal moisture that is a universal problem causing premature roof failure and lost energy efficiency. A wind-vented roof process of controlled, low pressure air exchange results in ongoing moisture removal.

Highly weather resistant roofs require a combination of quality workmanship, wind-vented technology and the proper selection of roofing materials can make it possible to build roof assemblies which are virtually impervious to major weather events. From an environmental viewpoint, roofing material waste is a significant factor in the overloading of landfills. The continuous mitigation of moisture allows existing roof assembly materials to remain dry and reusable. A wind-vented system allows for continual recycling of roof assemblies both today and in the future. Avoided tear-off costs combined with less labor-intensive installations result in significantly lower roof replacement costs.

THE SOLUTION TO CONSIDER

A wind-vented roof assembly with phase change material produces the lowest life-cycle costs while offering greatest energy efficiency. Considering that wind represents the most destructive force affecting roofs, a combination of a wind-vented roofing system with phase change materials is the ultimate solution. This system combines advanced technology with standard manufactured materials to produce durable, longer lasting and more cost effective roofing. The wind-vent system coupled with phase change materials applies to both re-roof and new construction applications.

Several housing agencies in New York state are employing the technology. One agency recently installed the phase change materials and roof vent system. In addition, the manufacturer is installing sensors to measure the phase change material energy savings performance. A second agency is also procuring the wind-vented roof assembly with phase change material. Contact Dick Santangelo (703-627-7161) or Mike Nail (301-639-3767) for further information or email your questions at wattshotnewsletter@gmail.com.

Utility Forecast Winter of 2016/2017

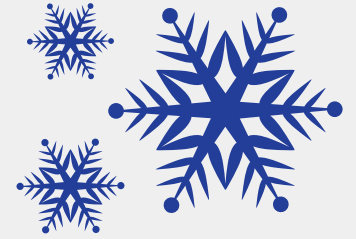


Over the past 6 months the Pacific Ocean has moved from a weak El Nino to a weak La Nina state which most forecasters predict will remain in place throughout the 2016/17 winter. La Nina represents a cooling of the Pacific waters from the warmer temperatures present during an El Nino period. Driven by this shift, NOAA's Climate Forecast System is calling for US winter temperatures to be below normal for the Midwest and Northeast and especially during January and February. Weak La Nina winters tend to open the door for cold Arctic air to come down from Canada. These forecasts can have a significant impact on setting future months' energy pricing.

The price of both natural gas and electricity has been stuck in a pretty narrow trading range for the past several months (\$2.50 to \$3.00 / MMBtu) driven by historically high levels of natural gas in storage offset by lower production levels and growing natural gas demand. Though natural gas supplies will remain abundant for the 2016/17 winter season, there could be a "rebalancing" which could drive energy prices higher as a colder than normal winter weather draws down storage to more normal levels.

How Will You Prepare and Plan for the Winter Ahead?

Buying and managing energy isn't easy. Many property owners and managers find it to be a confusing and time-consuming exercise. And who could blame them – the energy industry isn't one-size-fits-all. There are so many choices of products, rates and suppliers, that many businesses choose to work with a partner to help them make the right energy choices.



KNOW HOW TO FIND THE RIGHT UTILITY BROKER?

Many energy partners (brokers) have established relationships with only a handful of suppliers. Some only have a relationship with one supplier. In some cases, they have a favorite supplier that gives them more “perks” if they promote them. The ideal broker has relationships with a wide network of suppliers. This wide network, allows them to have suppliers compete against one another in order to provide the lowest cost. This also ensures that they are evaluating all of the top competitors and not missing out on an attractive rate. An efficient broker will have a sophisticated technology platform that allows them to constantly and easily monitor the energy markets and utility rates and evaluate your past and future energy usage to automatically find the lowest cost energy available in the marketplace from top competitors. Once they find you the best rate, they use their technology to provide easy-to-understand quarterly Performance Reports to show you exactly where you stand and how they are performing.

HOW TRANSPARENT IS YOUR BROKER WITH YOU?

Transparency is a key attribute of any relationship and it is no different when choosing an energy partner. Start with the offer summary, how easy is it to understand? A reputable broker will have to provide you with a sample offer that is easy to understand. Request a sample contract to make sure there are no surprises. Ask them to explain how and even how much they are compensated by suppliers. This should be something they are able to easily and willingly share with you. Beware of hesitation or an unclear answer. Most importantly, what kind of reports and benchmarking are they going to provide you to give you the confidence they helped you make the right choices?

HOW DOES YOUR BROKER GET PAID?

There's no shame in asking this question. Make sure you're clear on how they get paid, and how that affects their recommendations. Do they charge you a monthly fee for their services? Do they get paid on commission by suppliers? If they are paid by suppliers, find out how big their supplier network is - a smaller network can mean a lack of objectivity.

WHAT ENERGY SERVICES DOES YOUR BROKER OFFER?

They should be well versed in all things energy including power, gas and even solar and should be able to offer you help managing all of them. If you are exploring a partner that can only help you with one area of energy, you run the risk of managing multiple relationships - quite the opposite of the time-saving partnership you were looking for. Make it a point to find a broker that can help you manage all of your energy needs and in all the markets your business operates.

WHO IS IN CONTROL OF THE RELATIONSHIP, YOU, OR THE BROKER?

A broker is a partner. They are there to help you make smart energy decisions and guide you through the process. You want to make sure your partner is complementing your business not trying to tell you how to run it. A really great energy partner will work with you to understand your unique needs and make recommendations based on the discussions and preferences you have. Yes, they know the energy industry well; however, beware of a broker that dictates and doesn't listen. Your utility provider must remain vigilant and continue to closely monitor storage levels, weather forecasts and future energy prices so that you, the client, gets the benefit of any price breakout potential. A full service provider can assist clients with an energy procurement decision by weighing all the factors you should be considering.

WHAT ABOUT GREEN ENERGY?

Any energy offering can be made green, ensuring customers receive their energy from only 100% renewable sources. It's true! When, say, a large wind farm produces thousands of megawatt hours of clean energy, they get green credits for that energy in the form of Renewable Energy Certificates (RECs). Each REC represents 1 MWh of clean, renewable electricity. Those RECs can be freely traded, and whoever owns the RECs lays claim to the green energy they were sourced from. Any home or business, by purchasing RECs, can offset their fossil fuel usage and proudly claim that they're users of green energy.



And the best part is, RECs right now are at an all-time low, the right broker can help obtain 100% clean energy for only fractions of a penny more than the offer you're seeing from top suppliers, and typically at rates still below the utility's Standard Offer Service (SOS) Rate. This allows customers to boast that they've "gone green," or "use only renewable energy," in any variety of marketing materials. In particular, affordable housing providers, churches, schools, nonprofits and universities often get quite excited about the opportunities this opens up to differentiate themselves and proudly do their part to support renewable energy made right here in the U.S. There are a lot of utility service partners and brokers out there. There is a distinct skill set that separates the best from the rest. Only a full service provider can handle the paperwork. As a client, all you need to do is sign up as usual, and let the broker know "we'd like to be green, please."

For MF owners and businesses, lower utility costs mean lower operating expenses. For a public housing authority, the process of securing lower rates and employing an energy technology platform could qualify for a HUD rate reduction incentive of 50% and as much as 100% if obtained as part of an energy performance contract. If your state engages in utility deregulation (California, Connecticut, Delaware, District of Columbia, Illinois, Maine, Maryland, Massachusetts, Michigan, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Texas, Virginia), let the Doctors of Energy know you are interested in evaluating engaging an energy partner and discussing the options.

How Important is an Accurate Utility Allowance to Your LIHTC Portfolio?

Probably very important if you invested in energy savings improvements and the utility allowance (UA) is too high. You should be recapturing your investments in efficiency and property upgrades through a utility allowance specific to your property instead of the standard building approach. The average property has the potential of saving as much as \$35 per unit, per month when using an approved engineering approach that captures the distinctions of your buildings. Multiply \$35/mo. savings by the number of units x 12 months, and the savings can mount up quickly, far exceeding the cost to employ an engineered methodology. Tax credit rents include a utility allowance for resident-paid utilities; however, the methods the IRS has traditionally allowed owners to use to estimate resident utility costs tend to overestimate them. This, in turn, reduces the gross rent received by owners and threatens the financial viability of many LIHTC properties.



Historically, public housing authorities (PHAs) and other parties have calculated utility allowances by averaging the estimated utility costs for units of similar size and type across all buildings located within a public housing portfolio, using engineering or consumption-based methodologies. Through these methodologies, utility costs have been estimated on the basis of an "energy-conservative" household. This takes into consideration behavior in energy use, but may not account for the physical condition of individual buildings, investments in energy-efficiency for newly constructed projects, nor the retrofitting or rehabilitating of older buildings. Unless property-specific utility allowances are adopted, the portfolio-wide utility allowance for energy-efficient and less-efficient units is identical, creating a barrier to energy and water efficiency investment for any one property. The affordable LIHTC housing market has a need for engineered allowance services that provide an accurate analysis based on the unique design of individual properties and that meet the affordable housing compliance requirements for utility allowances. The right calculating tool can reward investments in energy efficiency with lower, more accurate utility allowances and a return on investment.

What Are the Characteristics of the Right UA Tool?

Accuracy: Specific engineered utility allowances for LIHTC and other affordable housing properties depend on a complete set of as-built drawings and the ability to analyze several factors that contribute to energy consumption, including architectural, mechanical, electrical and plumbing systems for each property. An accurate UA tool can be particularly beneficial for sites that are built to a moderate level of efficiency or that follow energy efficient design practices such as LEED® and ENERGY STAR®. An accurate UA tool uses an energy consumption model which analyzes expected building performance data of installed systems to calculate allowances.

Compliance: The tool must be compliant with IRS regulations regarding LIHTC utility allowances under 26 CFR Part 1, Section 42 “Utility Allowance Regulations Update.” Only compliant UAs can assist with obtaining approval from state finance agencies.

Cost Effective: With the right engineered methodology, engineered utility allowances can provide significant cost savings over other allowance calculation methods. Engineered allowances most often provide significant savings compared to PHA allowances and can help increase net earnings, support better financing options, and provide additional revenues that can be reinvested into housing projects.

In conclusion, an accurate UA can benefit owners by recouping their energy investments, while ensuring that the UAs are fair, accurate, reproducible and consistent. From a legal perspective, owners can expect less interaction with state agencies and the IRS over non-compliant utility allowances and the workload associated with a tedious remediation effort.

WATTS HOT at HUD

There were no recent energy policy revisions for Multifamily or Public Housing (PH) Programs. There was, however, recently Office of Inspector General (OIG) findings that could cause PH policy changes to address identified weakness. *Watts Hot Newsletter*™ keeps you abreast of any energy related policy changes. Synopsis of the findings are provided below.



AUDIT NUMBER: 2016-NY-1010; DATE: SEPTEMBER 12, 2016

PURPOSE:

The OIG audited calculation process for Public Housing Operating Fund subsidies. The OIG initiated review based on an internal audit suggestion. The audit objective was to determine whether HUD verified Operating Fund calculations to ensure that PHAs received the correct amounts and recaptured any excess subsidies provided.

FINDINGS:

HUD did not always adequately verify the calculation of Operating Fund subsidies to ensure that PHAs received the correct amount; however, it recaptured the funds once it determined that excess subsidies were provided to PHAs. Specifically, 1) unsupported utility expense levels were used in funding calculations, 2) units that exceeded the limit were ineligibly funded, 3) verification procedures for PHAs’ funding requests were not always adequately followed, and 4) HUD’s verification procedures were limited. These issues existed due to errors by PHA officials and HUD field office staff, an ineffective data reconciliation mechanism, a weakness in controls over record keeping, and a lack of emphasis on following verification procedures. More than \$12 million in operating funds disbursed to PHAs was not adequately supported, and \$116,218 was ineligible.

CORRECTIVE ACTIONS:

HUD has taken actions to improve its controls over Operating Fund calculation to assist HUD field office staff in more accurately and efficiently calculating and determining the funding amount.

Game-Changing the Hot Water Industry



Think about it – how often do we rely on hot water?

Today's PHAs are looking closely at the bottom line, especially faced with significant unmet capital needs, limited capital funds and rising maintenance costs. This approach to addressing your hot water requirements will open your eyes to a new way of thinking. It will help you operate your portfolio in a more financially secure manner by eliminating any capital outlay or debt service.

Join the famous *Doctors of Energy* in New Orleans and learn about a revolutionary new way for you to acquire, operate, maintain and pay for hot water equipment (*boilers, hot water heaters, etc.*) that no longer requires you to purchase equipment, or maintain or service it.

More details to follow in the next *Watts Hot Newsletter*TM.

If you have emergent hot water requirements that can't wait and have at least 225 units per building, contact Ken Loar at kloar1@aol.com.

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Energy Champions Podium

Each quarter *Watts Hot Newsletter*TM will recognize *Energy Champions*, individuals in the affordable housing industry that are game changers. Their efforts and contribution have made a significant difference in policy, project design, energy innovation, sustainability or resiliency, improving the life of the residents they serve.

*Watts Hot Newsletter*TM is proud to recognize two *Energy Champions* this quarter from the Philadelphia Housing Authority (PHA). The Philadelphia Housing Authority (PHA) is raising the bar among PHAs by developing and implementing an energy performance contract procurement that raised the standards for energy performance contracting going beyond the typical energy and water measures. Mindful of the events of Hurricane Sandy to the New York area and the environmental conditions of 50+ year housing stock, PHA saw an opportunity for including HUD's Healthy Home characteristics and resiliency as essential procurement requirements. Philadelphia has a Moving to Work (MTW) designation giving PHA additional flexible related to HUD's regulations and funding. Leading the effort, our Energy Champions Barbara Moore, Sustainability Coordinator and Nadine Young, Deputy General Counsel, began their journey by arranging training workshops for PHA's executive management to secure their support for the innovative procurement. PHA awarded a contract to pursue an energy performance contract (EPC), earlier this year. PHA's procurement challenged energy service companies to revise their current EPC model to accommodate PHA's emerging sustainability requirement. The PHA EPC has the potential of becoming a \$100M project, more importantly, it sets the stage for a holistic sustainability approach to energy and water conservation, integrating a Healthy Home and resiliency environment for its residents and property portfolio.

Congratulations to the Philadelphia Housing Authority, Barbara Moore and Nadine Young for being the Watts Hott NewsletterTM fall Energy Champions!

Contact Us

For further follow-up information on the *Watts Hot Newsletter*TM articles or questions about the newsletter you can call or email:

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