

Journal of

Utility

m a n a g e m e n t

MULTI
FAMILY

THE LATEST RESEARCH AND MODELS ON
OPTIMIZING UTILITY USAGE IN MULTIFAMILY
VOL. 4, ISSUE 2 • SUMMER 2014

Energy use: How do your communities perform?

Energy Summit issue

Mary Nitschke, director of ancillary services for Prometheus Real Estate Group, shares a case study on one of her properties at the Energy Summit 14 in Washington, D.C.

Madera Apartm

A Case Study In Sustainab

that's a fancy pants way
why we did it, what it me
and what it means to

Trying to make good business decisions without good data is like hoping for rain during a drought.

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Greystar

Energy Manager - Procurement and Sustainability

Utility Management Advisory, Board Member

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A national consortium for utility management professionals in the apartment industry



Regulatory

U P D A T E



Multifamily energy disclosure requirements

For links to read the actual ordinances, go to www.nwpsc.com/locallaw

TOWN	LAW / ACTION	BLDG SIZE	DISCLOSE TO	PENALTIES FOR INCOMPLIANCE
Austin	Energy Conservation Audit & Disclosure (ECAD) Buildings required to perform audit within 10 years of being built. Results must be posted within building and provided to prospective tenants and buyers. Properties consuming more than 150% of the average multifamily energy use per SF in Austin must make energy retrofits within 18 months of audit.	All complexes (no minimum size)	Prospective tenants and buyers	Class C misdemeanor and subject to fine up to \$500. If criminally negligent, a fine of up to \$2,000 may be assessed.
Boston	Building Energy Reporting and Disclosure Owner must track and report building consumption	> 50,000 sq. ft. or 50 units by 5/15/2015 (> 35,000 sq. ft. or 35 units by 5/15/2017)	Public website, government agency annually by 2015	Non-residential tenants: \$35 per violation for not supplying owner with energy data. Residents face no fines. Owners pay \$75-\$200 / day depending on size / use of building up to \$3,000.
Chicago	Chicago Energy Use Benchmarking Owner must track and report building and common area consumption. An engineer must examine data every 3 years and certify data to the City.	> 250,000 sq. ft. by 6/1/2015 (> 50,000 sq. ft. by 6/1/16)	Public website annually by 2015	\$100 to building owner for first violation, \$25 per day after that if not fixed.
NYC	Local law 84 Owners must report unit consumption. Audit required every 10 years on buildings > 50,000 sq. ft.	> 10,000 sq. ft	Public website, government agency annually	\$500; continued failure \$500 per quarter with a maximum of \$2,000.
Seattle	Council Bill 116731 Whole building data must be reported, including units.	> 20,000 sq. ft.	Government agency, residents annually	Quarterly fines \$500-\$1,000 based on building size. Owner and residents first violation: \$150.
DC	Clean and Affordable Energy Act Owners must report common area consumption.	> 50,000 sq. ft.	Public website, government agency annually	DDOE will issue a written warning. If violation is not corrected after 30 days of written notice, DDOE can fine owners up to \$100 per day.

THE FOLLOWING AREAS HAVE PASSED ENERGY DISCLOSURE LAWS THAT CURRENTLY DO NOT APPLY TO MULTIFAMILY: MINNEAPOLIS, PHILADELPHIA, SAN FRANCISCO, MONTGOMERY COUNTY (MD), STATE OF CALIFORNIA, STATE OF WASHINGTON. PLEASE NOTE THIS IS MERELY AN OVERVIEW AND IS NOT INTENDED TO BE A SUBSTITUTE FOR LEGAL ADVICE.



Ron Reed, CEO of NWP Services Corp. and Ted Kerr of Concierge discuss DeeAnne McClenahan's case study on saving utility costs.

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Navigating the future of cost containment and cash flow

In April of this year, I had the honor of hosting NWP's fourth Energy Summit. In the following pages, we have captured just a few highlights shared by this amazing gathering of water and energy professionals. Case studies have been included from three multifamily operators in addition to information on government programs beneficial to helping multifamily properties benchmark and conserve their use of resources.

At the beginning of May, President Obama called upon owners and managers to join the U.S. Department of Energy's *Better Buildings Challenge* to improve the efficiency of buildings within their communities by 20 percent or more over the next 10 years.

The *Better Buildings Challenge* is based on bolstering best practices and energy efficiency investments to help property owners control rising energy costs.

At our Washington, D.C. event, Maria Vargas of the DOE delivered an overview on the program, its progress, and the needed steps to participate. More than 190 organizations have committed to participate including: Winn Companies headquartered in Boston, Mass., the largest manager of affordable housing in the nation, EAH Housing, headquartered in Marin, Calif. and National Housing Trust based in Washington, D.C.

The President's executive action will also strengthen building codes to compel greater energy savings in new construction and deliver through Fannie Mae and HUD extra loan proceeds for energy- and water-saving improvements. Such improvements are expected to boost net operating income,

lower utility costs for residents and owners, and deliver improvements to the property.

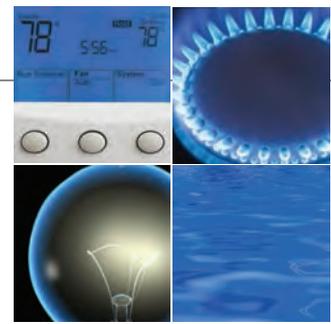
The *Better Buildings Challenge* is just one of a growing number of government incentives for property owners and managers. Funds are also available at many state and local levels for energy saving retrofits of all types; the hurdle is awareness and matching up to the most beneficial programs.

Such retrofits begin with a knowledgeable analysis including a wide sweep of metrics that include everything from utility rates, to level of use, to climate, while also considering rebates and other monies available for such upgrades.

Determining the greatest fiscal return for a specific community from energy efficiency programs requires the knowledge and guidance only derived from collaboration. ⚙️



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Journal of Utility management

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4115 Blackhawk Plaza Circle, Suite 100
Danville, CA 94506

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Actionable insights mark theme of NWP 2014 Energy Summit

Many of the nation's heavy-hitters were in attendance at the Energy Summit held in Washington, D.C. Representatives from Environmental Protection Agency (EPA), Energy Information Agency (EIA), and Department of Energy (DOE) delivered forecasts on energy supply, regulations and the future of utilities for tomorrow's renters.

KENT MCDONALD

Apartment owners and managers also led discussions and had questions for the governmental agencies at the event. The gathering focused on those challenges facing the multifamily industry including rising energy costs, growing regulations, and best practices for conservation and cost containment.

The Summit was sponsored by Costa Mesa, Calif.-based NWP Services Corporation in collaboration with the Utility Management Advisory (UMA), a consortium of multifamily professionals who drive successful operations guidance to both policy makers and property owners.

ENERGY STAR®

MICHAEL ZATZ

"It's always a pleasure to be in a small group environment," said Michael Zatz chief of the market sectors group for EPA. "I've enjoyed the presentations, but more importantly, the networking and discussions. I've learned a lot from the people at this event. This will definitely help the ENERGY STAR program."

Zatz was in attendance at the Energy Summit to deliver a presentation on ENERGY STAR and its future impact on the apartment industry, as well as the strong momentum on Capitol Hill toward benchmarking the energy use of apartment dwellers in the years ahead.

EPA is about to launch a new 1-to-100 score as part of its ENERGY STAR commercial program specifically for multifamily properties.

"What we're really looking to do," says Zatz, "is get people excited and interested so they are prepared for the launch of the score which will come in the early fall of 2014. I'm delighted to give those in multifamily a preview. We are relying on them to become

engaged, get the word out, and be ready to use that score when it becomes available."

ENERGY STAR has certified billions of square feet of space across thousands of commercial buildings as being among the most energy efficient in the country.

The ENERGY STAR program helps property owners and managers reduce energy consumption through a holistic approach, says Zatz. The program's success comes from following a staged approach known as the Guidelines for Energy Management, which includes benchmarking to identify properties with the greatest potential for improvement,

and advocates operations and maintenance improvements, behavioral change, as well as technology upgrades and retrofits.

The cornerstone of the ENERGY STAR program is benchmarking, and buildings that consistently benchmark energy use have saved an average of 2.4 percent per year, said Zatz. If all commercial buildings in the U.S. followed a similar trend, over 18 million metric tons of carbon dioxide equivalents could be saved each year.

Many multifamily owners and operators have not benchmarked the energy performance of their buildings. And while the



Michael Zatz leads the charge on improving the energy efficiency of a variety of building types including apartments, offices, schools and others. Zatz oversees ENERGY STAR's Portfolio Manager energy benchmarking tool including the development an ENERGY STAR rating for apartment communities. Portfolio Manager is currently used by over 70,000 buildings across the country to assess and track their energy use. Zatz has an MS in Environmental Science and Policy from Johns Hopkins University, and a BS in Engineering and Public Policy from Washington University in St. Louis.

ENERGY STAR program recommends benchmarking the whole property, owners and operators wishing to do so frequently lack the energy data for the whole property since residents often pay some or all of their own utility bills. Thus, they have little or no access to building energy-performance information that can help shape real estate decisions. This lack of information hampers the ability of legislators, utilities and lenders to influence the development of policies, incentives, and financial vehicles to advance energy efficiency.

This critical shortage of information about building energy performance has prevented property markets from valuing energy efficiency and severely undermined both public and private efforts to increase the energy efficiency of multifamily housing.

Launched in 2000, ENERGY STAR Portfolio Manager is a free online software tool that helps multifamily owners and managers track the energy and water performance of their properties, as well as track changes in energy and water use, costs, and greenhouse gas emissions. As of December, 2013, more than 19,000 multifamily properties have been benchmarked in Portfolio Manager says Zatz.

The ENERGY STAR 1-100 score, accessed within Portfolio Manager, provides an easy assessment of the energy performance of a property relative to that of its peers from across the U.S. It takes into account differences in physical and operating characteristics, as well as weather, to provide this

national comparison. EPA is finalizing the 1-100 score for multifamily, and anticipates releasing this new metric in Fall, 2014. The release of the score will also allow existing multifamily properties scoring 75 or higher (placing them in the top 25 percent of multifamily properties in the country) to earn ENERGY STAR certification.

The ENERGY STAR score evaluates a property based on its actual, billed energy use for the entire property. It is calculated by comparing a property's predicted energy use (estimated based on the physical and operating characteristics of the property) to its actual energy use. It doesn't sum the energy used by individual pieces of equipment, evaluate buildings relative to others in the Portfolio Manager, or adjust based on technology choice or market conditions (such as energy price). Furthermore, it is meant to explain how a property performs, not why it performs that way. For information on why a property performs in a certain way, EPA suggests an energy audit as the most appropriate activity.

EPA hopes to encourage multifamily businesses to develop a strategic approach to energy management, while conveying information about energy performance in one simple metric that can be understood by all in the organization, as well as residents. Such data will also be valuable in future infrastructure planning and assessments.

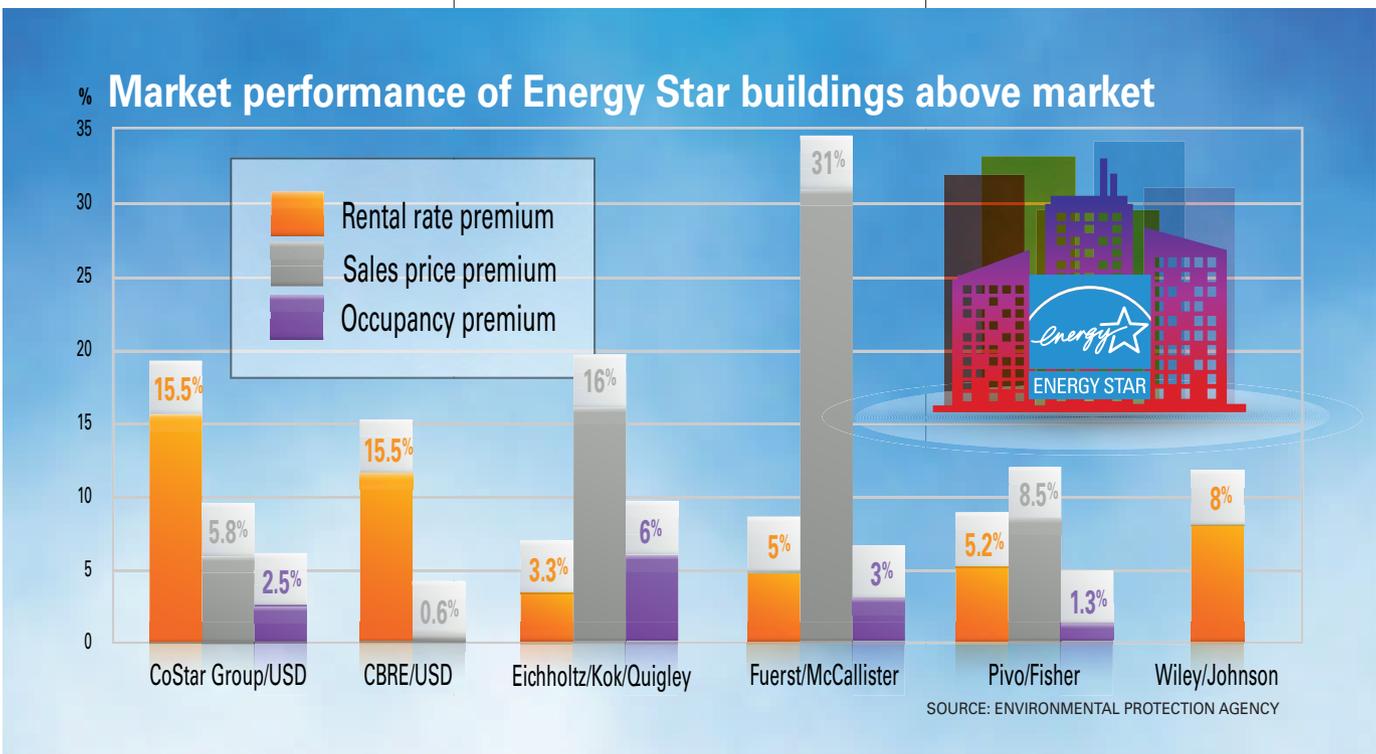
Still, the person benchmarking a building in Portfolio Manager needs to get that data somehow, and then they enter it into the

tool. In some cases, they get it from multiple utility bills. In other cases, where available, the utility will provide them an aggregate number for the entire building that includes all of the common area and resident units. In others, the property is master-metered and so the operator already has this data.

However, in many cases in multifamily, none of these situations exist and the owner/operator can't get the whole property data. This is the single biggest barrier to benchmarking in multifamily, and is one that many people are working hard to try to overcome. It is going to take effort and time.

At present, several organizations electronically exchange data with the EPA through Portfolio Manager. The first of the multifamily utility billing providers to adopt and provide an automated direct interface with its data with the agency, NWP has been part of the program for about three years. Through this exchange, both companies deliver energy performance scores and metrics to its customers, and streamlined access to ENERGY STAR benchmarking. This simplifies continuous energy management across a portfolio or properties.

"It's been a great meeting. NWP has been an active partner in promoting the work EPA is doing in multifamily," concluded Zatz. "We look forward to working with NWP and with NWP's customers as we launch the ENERGY STAR score and work to get our first ENERGY STAR-certified multifamily buildings through the ENERGY STAR commercial buildings program." ☀





The study titled, “Reducing Utility Costs in the Apartment Sector,” is an analysis of the net utility costs of properties owned and/or managed by Greystar compared to those of similar location and product type included in the National Apartment Association’s (NAA) 2013 “Survey of Operating Income and Expense in Rental Apartment Communities.”

While the national average of net apartment utility expenses per unit was \$535 annually according to the 2013 NAA survey, Greystar-managed apartments came in at \$303 per unit, per year (see the full report at www.nwpsc.com/whitepaper/greystar-outperform/) for a savings of \$232.

How did Greystar do it? I recently drilled-down on the operational practices that we implemented in order to perform better than market. The savings broke into three category gains: billing residents, consumption savings and rate savings in that order. Making headway in each of these is predicated on consistent benchmarking and a property manager’s ability to track fiscal performance and expense.

Begin with consolidated reporting. It is important to catch outliers, irregular utility use and to compare properties within a portfolio. Regularly measure the performance of your billing provider(s) to compare results and maintain the best-possible fiscal return; pull and review property reports on a regular basis to monitor how well a property is performing including its average utility expense and recovery; visit with regional managers on a regular basis to review performance and get a detailed handle on each property’s situation to find obvious needs for improvements or upgrades.

Once these methods of measurement are in place, my first and most significant recommendation: bill residents for the utilities they use. Simple, impactful, but still not a universal practice across the industry.

As these costs rise, it will be nearly impossible to contain them and keep an apartment operation fiscally solvent when a landlord is responsible for paying for utility use they have no way of controlling. According to my portfolio metrics, Greystar is able to recover more of its utility costs per-year-per-unit, because we are diligent about accurately charging residents based on their consumption.

The pay-for-what-you-consume model compels conservation among residents based on comparisons of utilities included vs. rebilled. To the Greystar portfolio, conservation (including retrofits and other management efforts along with resident conservation) equates to annual savings of

The real green

When Greystar recently teamed with NWP for a landmark case study on the fiscal performance of the properties under my review which using utility expense management programs, the results created quite a stir. Outperforming the market by 43 percent is definitely something to write home about.



DeeAnne McClenahan is senior director of procurement and sustainability for Greystar, the largest owner and operator in multifamily. McClenahan controls operational costs through supply chain and utility management. She has raised the focus of energy management, efficiency, and sustainability in multifamily properties as a core strategy of Greystar across the country. A Certified Sustainable Building Advisor (CSBA) and LEED Green Associate, McClenahan developed the Green Awards program to engage, motivate, and educate community managers, staff, and residents, and collect data.

about \$6 million in electricity and water.

The final proficiency that helped Greystar beat the national average in market performance relates to rate monitoring; assuring utility rates for your properties are accurate and efficient has a significant impact to cost containment.

Regarding rate procurement, relying on experts can be a no- or low-cost exercise when it's averaged over a wide number of units, or if properties are located in particularly stressed regions such as the southwestern states and its severe drought conditions. Stressed jurisdictions usually come with their own restrictions, premium rates, even penalties, depending on the consumption patterns. Rate procurement is not so complex as it is tedious. It's nearly impossible to stay current with rates and discounts available to larger utility customers such as an apartment community.

Rebates and retrofits

Conservation is on the hearts and minds of apartment owners and operators these days, as well as utility providers and legislatures, and there are plenty of rebates to prove it. Such rebates can come from utility companies, local, state and federal jurisdictions, manufacturers and more.

I ran the numbers on five Maryland properties, spanning 2,132 units, which we retrofitted for energy efficiency. This particular retrofit was a rather dramatic example because all-in, the cost on the project after rebates and credits totalled zero. The state-paid program meant that installation and labor were free, as well as product including light bulbs, showerheads, and aerators. The program almost immediately yielded a profit.

Year-over-year, the gross savings after upgrades was at least \$57,000 in gas; \$33,000 in water and \$59,822 in electricity across all properties. That meant \$70.23 in total savings per unit for a total of \$150,000.

We are now trying our hand at replacement toilets in Seattle—where water/

sewer costs are some of the highest in the nation and a local county rebate of \$150/fixture helps it makes great sense. The low-flow toilet initiative including installation retrofit and tax will run about \$93 per toilet net after rebate. At 1 gallon per flush, versus the 3.2 gpf currently on site, the predicted savings is 6,000 gallons a day—\$40,600 a year in water savings—and a sub-9 month payback, and over \$15 per unit per month. The project delivers a three year savings of \$93,120.

In Phoenix, I am delighted to share that we added smart irrigation controllers to one of our properties. The retrofit has saved ownership \$60,797 over a two-year period and has slowed the rising cost of water billed back to residents.

Mesa, Arizona, is a perfect city to try one's hand at solar and Greystar helped with a \$1.4 million solar installation up and running. The ownership is expected to cash flow \$127,151 by year five using tax incentives. Without tax incentives, it cash flows approximately \$21,969 in year ten. The net

up-front cost of the project was \$563,000 which is 80 percent of the system cost before incentives.

For this project, the owners assumed a 6 percent cap rate, and a 4.4 percent annualized increased in utility costs.

Finally, my favorite current project is that of the great toilet flapper. Beginning in 2013, Greystar established the company-wide policy that upon every unit turn, on every toilet, the flapper would be replaced (at an average cost of \$2.41 per flapper). In 2013 we changed 37,000 toilet flappers and hope to double that number in 2014.

As I collect the data on the great flapper program for my next case study, I will only say that I predict an immediate and most significant return will be found in the thousands of dollars in water savings. It is a well-reported fact that toilet flappers are one of the greatest causes of undetected leaks in homes of any type. I look forward to providing details of my findings at Energy Summit 2015. Stay tuned. ⚙️

Maryland high rise utilities				
2012 vs. 2013 comparison				
	2013 total	2012 total	Change 2013 v 2012	% Change 2013 v 2012
Gross water	195,755.16	175,804.72	19,950.44	
Water rebill	(73,957.78)	(10,839.32)	(63,118.46)	
Net water expense	121,979.38	164,965.40	(43,168.02)	26.2%
Gross electric	466,072.58	503,105.55	(37,032.97)	
Electric rebill	(166,498.46)	(29,138.31)	(137,360.15)	
Net electric expense	299,574.12	473,967.24	(174,393.12)	38.8%
Gross gas	199,044.01	243,762.13	(44,718.12)	
Gas rebill	0.00	0.00	0.00	
Net gas expense	199,044.01	243,762.13	(44,718.12)	18.3%
Year-over-year savings to owner: (262,279.26)				



Multifamily: leading water conservation

As Mary Nitschke of Prometheus RE Group, mentioned in her article, “Everything Old is New Again” (*Journal of Utility Management*, Spring 2014), given the significant size of the multifamily industry, we have an opportunity to make a meaningful impact on the amount of water consumed in the United States.

WES WINTERSTEIN

The catch is that we owners and managers are not the primary consumers of the water we dispense at our properties, but our residents. The majority of an apartment community’s total water consumption is the combined consumption of the residents in their individual units.

Typically, management receives a bill for the water consumption of the entire community (including resident consumption) each month. Multifamily operators can only impact that which we control, namely common areas. Where, then, is the opportunity for multifamily operators to conserve water?

In concert with the federal government’s leadership via the National Energy Conservation Policy Act (signed into law in 1978) as stated in section 8252 “promoting the conservation and the efficient usage of

energy and water...,” electricity providers began to individually meter electricity in individual apartment units making residents responsible for their consumption. The result, predictably, was an 18 to 30 percent drop in electricity usage.

Today, rarely do we find windows open in the summer or winter when consumers are responsible for their heating and cooling. The incentives and corresponding results are clearly defined and measurable.

The most basic economic principle also applies to water: when consumers pay for their measured consumption, they are “incentivized” to conserve simply because they are fiscally responsible for their usage.

In the late 1990s, due to several factors including a downturn in the economy and increases in sewer rates (frequently billed with water), multifamily owners were moti-

vated to mitigate the uncontrolled variable expense of water. This resulted in multifamily operators beginning to recover their water/sewer expenses by “billing back” or “reselling” the water/sewer to residents. The subsequent result was that the numbers, again, demonstrated that consumption decreased after consumers were obligated to pay for their usage.

In more tightly regulated regions of the country where it became mandatory to install water submeters in each unit and to bill back the residents for their measured usage, less water was used. In regions that allowed for residents to be billed back for their water usage, not mandating that the resident usage be measured (submetered), EPA concluded the reduction of water usage was less noticeable.

Today, billing back residents for their water usage has become common among apartment managers, even spawning the emergence of resident utility billing companies and increasing focus on utility management. The practice, however, has not fully penetrated the industry and, even more telling, measured usage is the least common billing method among resident utility billing companies and property owners.

Experience demonstrates that residents who pay for their metered water usage consume less water; since their behavior has a direct impact on their bill, residents are more likely to conserve because it directly benefits them to do so. The measured results also provide evidence that residents who pay a water bill, but their usage is not metered or measured, consume more water because the bill they receive is not directly impacted by their actual usage; they are not negatively impacted by wasteful behavior.

Frankly, most of us do not need a myriad of studies or complicated research to inform us that being wasteful is foolish and expensive. The value of water is not in question. That is probably why there is no shortage of resources available to educate us on effective water conservation measures. Simply Google “water conservation” and you will find 116,000,000 results in 35 seconds; an actionable number of which even advocate solutions that can directly impact residents living in apartment communities.

EPA estimates that 70 percent of all household water consumption occurs indoors (this is probably higher in multifamily.) If the multifamily industry is serious about water conservation, we will advocate —dare I say, mandate—that our residents pay for their individually-measured water usage. Our fiscal solvency as multifamily operators depends on abating these costs. ⚙️



Wes Winterstein drives sustainable utilities management processes for Bell Partners’ portfolio of over 70,000 apartment homes. His extensive experience in utility billing and expense management provides unique focus and support to operations. He directs conservation initiatives, procurement strategies in deregulated markets, and manages solid waste and recycling performance for the organization. Wes came to Bell from UDR, where he spent 6 years, most recently as the director of energy management. He served in the U.S. Air Force for eight years prior to entering the private sector.



The Village of Western Reserve includes 108 townhomes with attached garages. Located thirty minutes southeast of Cleveland, each unit includes a washer and dryer, but that didn't explain the exorbitant gas bills each month. The natural gas lights throughout the property which remain on 24/7, however, did shed light on the issue (inset).

quickly grew into a great public utility. The Cleveland Gas Light and Coke Company and the Peoples Gas Light Company supplied and flourished within the city for decades. Eventually, and with great controversy, East Ohio Gas Company laid its pipes to the city in competition with the artificial gas companies; the natural gas brought from the West Virginia fields could be furnished cheaper than gas could be manufactured.

What ensued was great public angst, years of swirling consternation, and a legislative appetite to price fix said commodity.

What a difference a century makes. Preserving history is one thing, energy efficiency and asset performance is quite another. Still, the gas lights stay. Not because of my love of history but instead, because it's cheaper to keep them. Honestly, I've yet to find an equitable solution to replace the illumination legacy without spending far more than it costs to keep the gas light burning.

For a cost-containment exercise in water, I suggest the aptly-named Atlanta, Georgia-property, The Falls. This jewel in the AEC portfolio made the radar when its water consumption tipped 3 million gallons a month. The remedy came in adding dual-flush toilet flappers and low-flow aerators to the faucets and showers. Water consumption at the 504-unit property has now dropped significantly, cutting the utility cost nearly in half.

The metro D.C. area is location to my final and biggest utility challenge: the 250-unit property, Dwell Vienna Metro in Fairfax, Virginia. By any standard, and certainly in comparison to its nearest neighbors, Dwell Vienna's electricity use is off the consumption charts.

As it turns out, its underground parking garage where the lights are on 24/7 for security and simple functionality, continue to drive its common area electricity consumption, sky-high.

This might be the property that keeps me up at night as I have yet to come to a cost-effective solution to cure the problem. To retrofit the garage with any other type of lighting would be costly. My goal is to reduce the property's electricity consumption with ROI inside 12 months. I'll likely have to wait for rebates on this one because until then, the deal doesn't pencil. ⚙️

Compare and contrast: adding context to utility consumption

I am a sleuth, spending much of my time uncovering water and energy pigs at my properties. As such, the best advice I can give to apartment managers is this: a simple year-over-year review of utility expense is not enough. Compare properties against one another to truly understand performance.

Mine is a tale of three properties. The first is a gas. Literally. While small in stature, a quaint 103-unit townhome community sits just outside Cleveland, Ohio. Most notable is its huge punch of gas consumption on my bottom line each month.

Just a simple visit to the property told me all I needed to know. The place was full of

gas lamps; they were everywhere and on constantly. And there is no way to turn them off. Ever. The Village at Western Reserve is a small lesson in local history and I have since learned, firsthand, that perpetuity has its price.

In 1849 the first gas was brought to Cleveland expressly for lighting and it



Timothy Haddon is director of ancillary services with Associated Estates, a firm he has served since 1998. Haddon is an advocate of utility management and conservation as a member of an internal Environmental and Sustainability Taskforce. Before joining Associated Estates, Haddon worked in residential construction and earned his BA from Kent State University. Haddon is an avid cyclist. He is the captain of Cheryl's Crew, a cycling team that raises money for Multiple Sclerosis research. Spare time is rare, but Haddon is also fond of motorcycles and snow mobiles.



Madera apartments is located in Mountain View, California, a Silicon Valley hot spot. In addition to Google, other employment neighbors include Facebook and Yahoo less than 10 miles away. The site is a former lumber yard that was family-owned for generations, and so the community was named Madera in its honor. The builder took extra care in the construction and lease-up of the site so as to not draw the ire of the extremely tech savvy, always-online silicon community.

properties to achieve its coveted rating includes standards relating to: 1. Indoor air quality; 2. Energy efficiency; 3. Water efficiency; 4. Resource conservation; and 5. Community—reduce urban sprawl while protecting some of the remaining open space. To fulfill the Community requirement the development must be located where residents can work and live in close proximity to each other (so that the residents spend less time in their cars and more time with their families.) What elevates the family elevates the community.

Using Green Point rating program was not a bad thing for Prometheus, as one of the pillars our brand is sustainability. Prometheus wanted to build a green community while delivering features that mattered most to our residents.

Prometheus strived to add green features and amenities at Madera that were meaningful to the Mountain View market. Additionally we believed we could add features with a promising ROI. Lastly, we felt

Why build green?

There are a number of reasons to build green apartments including it may be mandatory, it can save money and it strengthens our National Security. My favorite green play is Prometheus' 203-unit property, called Madera, in downtown Mountain View, California, where the air is crisp, the residents are Google, and the rents are strong. Madera was the subject of my case study review at the Energy Summit.



1. **The bike room at Madera** is full to capacity. It holds up to 203 bikes at any given time. 2. Every parking space at Madera is pre-wired for a level 1 EV charging station should the need arise.

In order to allow Prometheus to develop our site, the environmentally-conscious city of Mountain View encouraged the community to have a Green Point rating. Similar to

LEED, Green Point ratings come from the Build It Green organization, a group established in 2005 in the Bay Area.

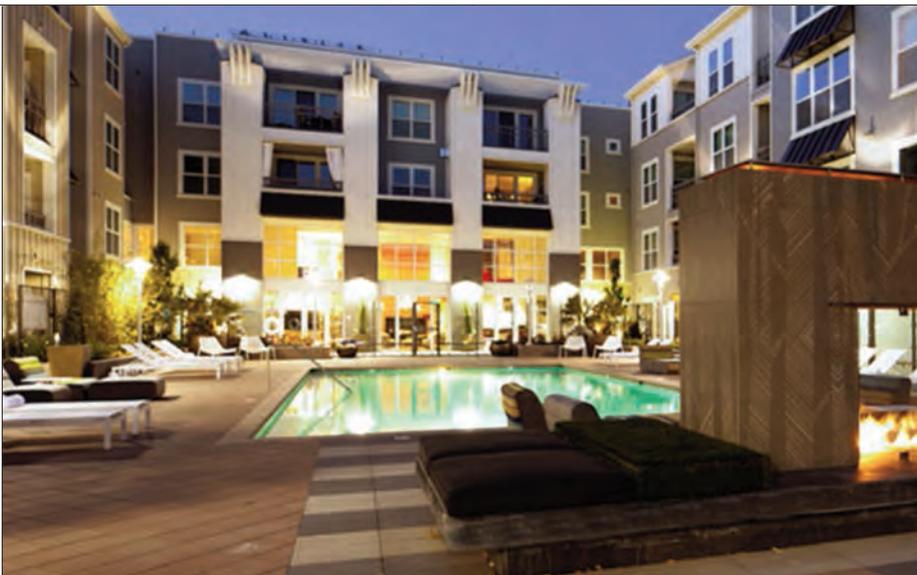
Build it Green's criteria for multifamily

that adding sustainable features is American and the right thing to do.

The community garnered a stunning 127 points awarded it by the Build It Green program; 50 points is the minimum required to be rated. It's not easy to achieve this level of greenness, and it's on par to a silver level LEED award.

If the first rule of real estate is location, location, location, this community hit it perfectly. Madera has a walkability score of 72 out of 100, and adjacent to public transportation and Bike Share (a program offered through the site's public transit partner, VTA). It is less than 10 miles from the Google Campus and less than a 15-minute walk to the Mountain View downtown, where there is notable entertainment and nightlife.

Living at Madera, our residents are pleased by the green features and amenities of our community. They appreciate the lifestyle that Madera gives them. Our large bike room holds up to 203 bikes and is well used by our residents. Additionally, every parking space at the site is pre-wired for a level 1 electric vehicle (EV) charging sta-



Pros: Synthetic turf requires no mowing, trimming, watering, fertilizing or pesticides. It reduces your water bill, looks great year-round and is widely available for installation in most metropolitan areas. Natural-looking types are available, making it almost impossible to tell fake grass from real grass unless closely inspected.

Cons: Faux grass is expensive and takes skill to install properly. Less-expensive types can look cheap and unnatural, so it pays to install the highest quality you can afford. Be sure to consider all factors, like your climate to ensure that synthetic turf will be right application for your needs.

tion meaning that every household could have an all-electric vehicle.

If there was any concern that all 203 households might trade in their bicycles for all-electric vehicles and send the property's electric bill over the moon, we can offset some of it with our 82,000 KW photovoltaic solar system, and regenerative elevators (yes, Madera's elevators actually generate power that can use used for the communities' other systems).

California is in a significant drought and most water districts are requiring significant reductions in consumption. Madera is ahead of the water restrictions with smart controllers that provide just the right relief to the community's drought-resistant, all-native plants and trees. An added bonus for residents is the herb gardens that make dinner a breeze for residents.

For the wide-open, sun-soaked common areas, lush, artificial lawn carpets the eternal greenbelt and softens the built-in seating; water consumption is reduced and maintenance is relieved. Residents are happy, once again, and without complaint about brown grass in July in Silicon Valley. It's a win-win.

While Madera may be the hottest thing going in Mountain View, it is 100% Smoke Free. Our research showed that our residents wanted non-smoking apartments and communities. Smoke free homes benefit residents

The biggest benefit to salt water pools is that salt pool owners no longer have to purchase and transport large quantities of chlorine from the store to the property. A salt-water pool is a mini-chlorine factory inside the swimming pool. Do salt water pools save money? In some cases, the amortized equipment cost is less than purchasing chlorine. But in most cases, the costs are about the same as purchasing sodium hypochlorite, the least expensive form of chlorine.

by improving air quality. Smoking is prohibited both inside the apartments and common areas, and within 25-ft. of buildings.

Other green amenities at Madera include its solar-heated, salt-water pool and green roof lounge. The property includes an active building system that automates messaging to residents' phones and email, such as package deliveries alerts and more. High utility bills are kept at bay with dual-pane windows, LED lighting, Energy Star appliances and other energy efficient features. Water usage at the property is about 41 percent of other communities and electricity is approximately 25 percent less.

What does the market think? I'm proud to report that Madera was 25 percent leased before there was a model to show and 100 percent six months after we officially opened our doors. Currently, at Madera, rents and renewals are strong.

Building green is fun for everyone. ⚙️



Mary Nitschke is passionate about utilities and should, perhaps, switch to decaf. She is the first president of the Utility Management Advisory Board, holds an Energy Resource Management Certificate from UC Davis, two BAs from UC Berkeley and is director of ancillary services for Prometheus Real Estate Group, Inc. Nitschke has the first law of thermodynamics posted by her office door, and a 1970 Lincoln Mark III, which over 400 bhp, in her driveway in northern California.

Better Buildings challenge

“There’s great opportunity for owners and managers of multifamily properties,” says Maria Vargas, director of the Better Buildings Challenge at the recent Energy Summit in D.C. “Part of the reason we wanted to meet is to discuss what we’re trying to do at the Department of Energy and the Better Buildings Challenge, and how, together, we can drive energy efficiency in multifamily properties.”

Yet, she admits that persistent barriers exist and cites a number of reasons why. Vargas says that energy efficiency is not always included within the framework of corporate decision making, and certainly not in business planning. There’s a lack of senior management buy-in due to a lack of information, even misinformation.

Vargas contends that the lack of available financing constricts the industry’s ability to make needed retrofits, and that resident behavior usually runs contrary to conservation. The split-incentive of the rental model (i.e. where owners bear the cost of upgrades and residents reap the benefit) make it challenging to monetarily incentivize retrofits and finally Vargas believes, there is not enough qualified workforce to execute such retrofits.

Vargas is leading the charge on a Department of Energy initiative called Better Buildings Challenge with the goal of making commercial, including multifamily, buildings 20 percent more efficient over the next 10 years. If accomplished, the program is estimated to save American businesses more than \$80 billion annually and boost domestic job creation.

The program works through 6 key catalysts: leadership, results, transparency, best practice models, recognition and action.

At present, financing and ROI models mean that most multifamily companies participating in the program are affordable and student housing sector types. Forest City of Cleveland, Ohio, EAH Housing of Marin, Calif. and Bridge Housing Corporation of San Francisco, Calif., mostly non-profits, to name a few. But Vargas says that there are plans to break through to conventional properties by balancing incentives and regulations, metering strategies, green leasing and earmarking funds to stimulate retrofits. Forest City is currently ranked 21st largest owner in the country with 48,201 units under ownership; it is ranked 36 in number of units managed on the National Multi Housing Council 2014 list.

Forest City joined the challenge in order to improve the energy efficiency of the buildings in its portfolio by first committing to the organizational structural needed to set goals and prioritize energy efficiency.

Forest City believes that optimizing energy management requires a well-structured organization with a clear definition of roles,

responsibilities and accountabilities. Creating a sustainability department helped drive the initiative and align field decisions with corporate objectives.

Benchmarking results, program transparency and recognition are also key to the Better Building Challenge success, says Vargas.

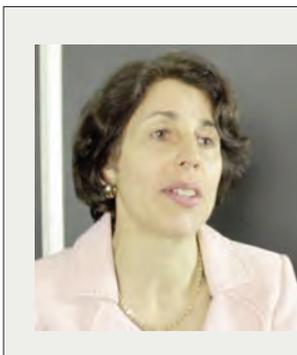
When agreeing to take the challenge, a multifamily owner and operator agrees to 3 actions: commit to improve a building or buildings’ energy consumption by 20 percent over the next decade; showcase a project within 6 months along with its implementation model; and reporting and publishing portfolio-wide energy performance data results including tracking progress on an annual basis. For its part, the DOE will provide technical assistance on energy efficiency models, collaborate with partners taking the challenge, establish a marketplace of energy efficiency stakeholders and recognize the success of Better Building participants. Where applicable, HUD and DOE will give preference to participants in competitive funding environments.

The Better Buildings Challenge is seen as an extension of President Obama’s Climate Action Plan, especially with its improvement goals. Energy efficiency has garnered the administration the broadest support as initiatives about to implement benchmarking and energy efficient programs. Although it’s just making its way into the multifamily space, other commercial sectors, such as hotels, are already seeing returns.

Bob Holesko, VP of facilities for HEI Hotel & Resorts which owns 41 Marriotts across 6 states, says that organization saves \$5 million a year on utility bills through its retrofits and is proud to participate in the Better Building Challenge. He says just one example that delivered ROI (return on investment) almost immediately was programmable thermostats which pay for themselves inside of three years.

When hotel guests leave their room during the day, a door sensor tells the thermostat to reduce heating or cooling and resumes its temperature upon their return to the room. The hotel also uses motion sensors in stairwells and vending areas to dim lights when not in use.

“We’re enthusiastic about the next step,” says Vargas. “We’re interested in working with NWP customers because as leaders in the multifamily sector, there’s a lot of opportunity to reduce our energy waste. We need to figure out who’s leading in the space and profile the innovative work they are doing. This will not only benefit their peers, but it will benefit the industry broadly.” ☀



Maria Vargas is director of the Better Buildings Challenge at the DOE and senior program advisor in the Office of Energy Efficiency and Renewable Energy at the DOE. Vargas was also brand manager for ENERGY STAR for over 15 years. She was co-director of the ENERGY STAR Buildings and Green Lights Partnership and has worked on policy regarding ozone depletion, global climate change, and environmental and energy issues since 1985. Vargas has a Bachelor’s degree from Swarthmore College in political science and economics and a Master’s degree from the University of Oregon in public affairs, urban and regional planning.



NWP mobile vans are fully-equipped with all state-of-the-art equipment to service both radio-frequency and Internet-protocol systems.

Submetering automation

The world is quickly evolving into the Internet of Things (IoT) as mobile devices proliferate into daily living. It's impact has yet to be felt within water submetering—yet, it isn't far off. Trends show that automation is here to stay with new markets in home and building automation becoming multimillion dollar industries.

BILL MELENDEZ

Most automated metering reading (AMR) implementations are simple systems consisting of a radio and meter combination, plus a data collector with mainly phone line connectivity. These will eventually change as manufacturers introduce new technologies and Internet-dependent systems.

One company, Tehama Wireless, has a data collector that works through broadband routers within an apartment leasing office. Access to the data collector is through a server-based Internet.

Others are moving toward Internet-based meter reading such as Inovonics' push to connect individual meters to the cloud. Some companies are pioneering server-based Internet data collection as a means of improving data management.

For billing companies, such as NWP

Services Corporation (NWP), the move toward the Internet creates opportunities as well as challenges when implementing Internet-based data collection in multi-housing environments.

As systems become more complex in their communications and metering infrastructure, customer service and billing options start to dominate the landscape. Leak detection and daily water usage notifications can help residents minimize high water usage and subsequent bills. These value-added options personalize water metering to the resident which tends to engender customer loyalty and improve customer perception of the billing process.

From a billing perspective, smart metering of apartment water provides better operations management and billing. The benefits of AMR lead to earlier detection of

meter maintenance issues based on meter performance data being collected.

Priority can then be determined as to which meters need attention. Low usage, high usage or no data being received are indicators that smart metering easily identifies. This allows for rapid response and timely maintenance visits to correct the deficiencies noted through the AMR/billing connectivity.

Without this feedback from the local smart metering system, identifying maintenance or performance issues would be extremely difficult and time consuming, and require constant on-site meter evaluation.

Home and building automation systems will eventually filter down into submetering. This brings a new level of required technical expertise and knowledge in computer systems and wireless networks.

So far, the level of technical sophistication required to install AMR systems lags behind the today's information technology trends. The main reason is the simplicity of most AMR devices and communications infrastructures. As companies cost leverage existing and future submetering AMR, the need for better and faster services, plus application benefits, will increase in importance. It will differentiate one billing company from another.

Resident expectations, based on mobile devices and Internet technologies, grows as they become aware of potential features of future metering systems.

The biggest unknown in submetering AMR is the question of integration. How far will automation integrate the various utilities (electric, water, and gas) within apartments and what technologies will dominate the landscape? It is these unknowns that the industry must someday answer.

Integration is a game changer and a disruptive element of technology innovation. As submetering AMR moves from legacy systems to open platforms and into the Internet of things, the focus will move from simple systems to complex technologies.

The move to empower residents with unique metering information goes beyond simple water billing. Complex technologies provide data mining and information granularity that benefit the resident, and the billing company that owns the metering system.

Like mobile devices, the information available from integrated smart metering systems add another dimension to the consumer experience. ⚙️



Bill Melendez serves as a submeter sales specialist at NWP. He has over 15 years in Automated Meter Reading (AMR) technologies and multihousing submetering application experience along with 15 years in mobile and fixed radio systems. Melendez is an avid contributor to the smart grid/smart meter forums, has published articles in *Metering International* magazine and Energy Central newsletter. Melendez earned a MBA from the University of Maryland and Bachelor's degree from Lee University. He lives near Dallas, Texas, and enjoys computer graphics, reading SciFi and tinkering with electronics.



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