

*Journal of*

# Utility

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THE LATEST RESEARCH AND MODELS ON  
OPTIMIZING UTILITY USAGE IN MULTIFAMILY  
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**MULTI  
FAMILY**

**Ignore sustainability  
at your own risk**



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Making good business decisions  
without boots-on-the-ground knowledge  
is like laying pipe in the dark.

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Utility Management *Advisory*

T O W N H A L L

Calling all members:  
Join us for our next  
Town Hall meeting.

### **Budgeting & Forecasting**

August 18, 2015  
11 am EDT / 8 am PDT

### **Benchmarking & Quantifying Results**

December 1, 2015  
11 am EST / 8 am PST

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## As temperatures rise, so do the benefits of energy management

Summertime is here and with it, conservation and consumption awareness become top of mind. In the summer we use water and electricity at much larger volumes. In fact, NWP's energy consumption data for the Midwest shows electricity and water use increased 22 percent and 24 percent, respectively, from spring to summer 2014.

Water is fundamental to existence, yet in many respects, it is also one of the most mis-managed resources. We continually seek innovative ways to protect this resource and lower bills by inspiring residents to join in the effort.

Showers are one of the highest uses of water inside the home according to EPA (U.S. Environmental Protection Agency). Perhaps we can help you encourage your residents to shorten their showers. Trimming just two minutes off a shower can save up to 1,750 gallons of water per person each year. Installing water-efficient showerheads, toilets and faucets in your units can eliminate thousands of gallons of water waste each year and with local rebates can

deliver no to low cost pay-off terms. We offer helpful tips for you to share with your residents through our conservation flyer and social media.

Electricity consumption also rises as temperatures climb and air conditioners kick on. For properties in regions that require air conditioning, ceiling fans allow occupants to raise the thermostat setting about four degrees without decreasing comfort.

Helping residents cut back unnecessary consumption through education and awareness is an effective way to save money, build value and retain occupancy. Whether it's education about trends in going green or how to manage rising energy rates, NWP offers research and guidance proven to lower consumption and manage costs. Saving money on utilities helps your bottom line and aligns you with your residents in saving money and knowing they are contributing to conservation of natural resources.

In March, we held our fifth annual Energy Summit in Washington D.C. The Summit offered a full line up of professional

education on utility management for multi-family housing.

Our educational summits showcase top executives and policymakers in federal and local government, and offer a forum for owners and managers to impact policy strategies, learn energy trends, peer-to-peer case studies and conservation recommendations. Managers and owners that represent more than 5 percent of roughly 40 million apartment homes in the U.S. multifamily housing industry participated in this year's conference.

Representing key industry pundits and policymakers were Housing and Urban Development (HUD), Department of the Environment (DOE), Environmental Protection Agency (EPA), GreenBiz Group Inc., U.S Green Building Council (USGBC) and the Climate Prediction Center (CPC).

This issue of the *Journal of Utility Management* compiles a basket of utility management topics impacting the multi-family housing industry, all of which play an integral part to cost-saving efforts and efficiency benchmarks. If you're contemplating LEED Certification, be sure to read the article on the latest operations and maintenance standard so you can decide if it's an option that's right for you.

We also dive into the importance of a well-running toilet. Bottom line: stopping even a small leak in a toilet can mean significant savings over a long-term period.

I believe you'll find this issue will be useful. We are committed to delivering the latest regulatory, technology and best practice activities that impact your communities, so we can help you continuously improve your business and lower utility consumption.



Ron Reed, Publisher  
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## The long view on green certifications

Green has finally arrived in multifamily. Or so it seems.

While it's taken a few years to mature and take hold inside the apartment space, ongoing evidence of its value has made going green more desirable to lenders, developers, and now apartment operators.

Just what is the real value of green certifications to apartment owners, particularly retrofits on existing apartment buildings?

The reason for the slow embrace of sustainability by apartment owners may be that we are realists. And we suffer from simple-step syndrome. Project pay-offs must be obvious, and methods, simple.

Simple-step milestones are both easy to understand and to present to our stakeholders. For example, with new construction you scope it, bid it, and build it. Once the job is done and the CO (certificate of occupancy) is signed, you've either made your numbers or you haven't. Your commitment to your lender concludes with the project hand-off.

But green has a "longer tail" as it's called in statistics. The cost analysis and value is derived from the performance of the structure, including its upkeep and maintenance, and there's still so much more. The long tail of green apartment operation includes, but is not limited to, a complex interaction of physical plant, regional utilities, local laws, effective rents, and resident demographics and behavior. This is even further complicated by the dreaded split incentive nature of apartments whereby the owner pays for some or all of the water and energy conservation measures of which the resident is the unvested beneficiary.

Nevertheless, drought, aging infrastructures and the ensuing rising utilities have

dropped this green movement, specifically conservation, on to our properties and into our spreadsheets. It's not always an easy or step-by-step path to prove value, but with thought and advanced planning, it can pencil and be a viable method to controlling the uncertainty of rising utility costs.

As green initiatives have evolved, so too has the race to identify and value their effects according to meaningful and consistent standards. Nationally, there are two major players by way of footprint and impact in the field of green certifications for apartment buildings.



### A green certification primer: ENERGY STAR®

ENERGY STAR was first launched in 1992 and grew out of the Green Lights Program, which had the goal of working with office and building owners and managers to retrofit their lighting to more energy efficient options. It's a U.S. Environmental Protection Agency (EPA) program and today provides a widely-recognized standard for energy efficiency in buildings, consumer appliances, electronics and homes.

Even as it continued to expand and morph, ENERGY STAR in the buildings sector was most often engaged in the office, school, retail and other buildings sectors for much of its history and there was little engagement with the multifamily sector. Recently however, ENERGY STAR launched a new offering for existing multifamily

properties that has garnered the interest of many in the industry.

For existing buildings, the program works on a 100-point scale. Benchmarking energy use at a property and scoring 75-plus indicates your building is in the top 25 percent of energy efficient performance compared to similar buildings across the country and is eligible for an ENERGY STAR certification.

To earn ENERGY STAR certification in the multifamily category, a property must have whole-property energy data (including inside the individual units as well as common areas), have at least 20 units and at least 50 percent of the buildings' square footage must be used for multifamily housing.

"ENERGY STAR's Portfolio Manager® is an excellent tool and metrics calculator to benchmark a company's energy, water and greenhouse gas emissions," shared Energy Star Manager Michael Zatz, "The benefit for companies just beginning their conservation efforts can be substantial and over time leads to monumental savings as owners and managers act on the results."

EPA asserts that ENERGY STAR-certified buildings save over \$9 billion annually in energy costs over conventional buildings and use 35 percent fewer greenhouse gas emissions than comparable buildings.



### A green certification primer: LEED

LEED or Leadership in Energy and Environmental Design, the second of the more widely-

recognized green certifications, began in 1994 as a single building standard for new construction. LEED is a product of the U.S. Green Building Council (USGBC), a private non-profit organization headquartered in Washington, D.C., and also works on a 100 point rating scale. Once rated, properties are then awarded 1 of 4 certification tiers: platinum (80 points); gold (60-79 points); silver (50-59 points) and certified (40-49 points).

Whereas, the only direct cost of ENERGY STAR certification is for a licensed professional engineer or architect to review and certify a property's results, LEED certification also carries an application fee that typically runs in the thousands of dollars. The fee varies depending on the size of a project and whether the owner is a USGBC member.

"LEED certified buildings save money and resources and have a positive impact on the health of occupants, while promoting renewable, clean energy," states Asa Foss, LEED AP Homes, LEED Residential Technical Director, U.S. Green Building



**Tom Spangler** is one of the elder statesmen in resident utility billing, meaning he has spent entirely too much time trying to explain what he does to people outside the multifamily industry. Spangler is currently serving as Acting Senior Director for Greystar. Prior to that, he managed ancillary income and utility expense programs for UDR for over a decade. Spangler is a lifelong Virginia gentleman and has an engineering degree from Virginia Tech and an MBA from the Darden School at UVA. Tom lives in Richmond, Virginia.

# Family of LEED building rating systems



Council. “Our green building certification program recognizes best-in-class sustainable building strategies and practices.”

The USGBC states that LEED-certified buildings run, on average, 13.5 percent less in overall operating costs on new construction, and an average of 8.5 percent less on existing buildings. USGBC research suggests that LEED certification has a positive impact on occupancy with a 6.4 percent gain on new construction and 2.5 percent gain on existing. According to research by the Institute for Building Efficiency, various studies indicate improved resale value ranging from 5.8-35 percent.

## LEED for existing buildings

When LEED began awarding credentials in the early 1990s, it was only focused on new construction. Its existing buildings segment was formally launched in 2002. It was a logical move.

The challenge of rising energy costs went far beyond newly constructed homes and apartment buildings. Existing residential buildings accounted for 53.7 percent of the total national energy consumption in 2002, and 51 percent of all U.S. electricity consumption. The average household spent \$2,000 a year on energy bills, yet new construction made up less than 1 percent of the national inventory. Green certifications were addressing less than 1 percent of the issue.

LEED-EB: Operations and Maintenance spun off a new set of standards targeting the specific concerns of older buildings, their distinct maintenance needs, and the retrofits necessary to bring operational perform-

ance in line with present-day conservation. The overarching objective was to identify and guide high-impact improvements to buildings, increase operational efficiencies and decrease costs. Most importantly the agency is intent on modeling retrofits that deliver quick payback periods to owners.

Advances in the LEED-EB program include charting out predictable development cycles on retrofits, refining more transparent environmental and human impact weighting and layering regionalization into the calculations. The 100 point system is weighted across 5 categories: energy and atmosphere (35 percent); sustainability (25 percent); indoor environmental quality (15 percent); water efficiency (14 percent) and materials and resources (11 percent).

The original LEED-EB standards were mostly based on installed equipment and the availability of public transportation. By 2008, the assessment became more building and occupant-performance based. The following year LEED-EB awarded up to 15 points for reductions in commuting by building occupants. Today, the program assesses a property's operating plan, conducts a basic energy audit, and issues appropriate credits for a community's adaption to regional priorities such as mastering water efficiency in areas affected by drought.

Most recent advancements include standardizing the program to create efficiencies for building owners across a portfolio. The USGBC recognizes uniform approaches and streamlines the review process accordingly.

Presently there are over 120,000 apartment units in the U.S. seeking LEED certi-

fication. Ninety percent of LEED's total residential portfolio are multifamily assets. Of new multifamily construction, over 10 percent have chosen LEED certification in 2014.

LEED-EB has already been adopted by hundreds of companies, cities, states and even the Federal government by way of its GSA-owned and leased buildings.

Green certification has proven to coincide with energy efficiency within any market, as well as to lower operating costs. Socially, it is a clear step forward on the part of a company to meet sustainability commitments. It has also become a feature that residents now seek.

## Why it matters

Since multifamily is generally an industry of pragmatists, the biggest push for green certifications is usually based on the cost savings associated with sustainability. Green certifications have now proven to be associated with lower operating costs. It's a simple business model and adds value to an asset in easy-to-understand terms.

However, research continues to suggest that occupants in green certified buildings tend to be more satisfied than those in conventional buildings, as well.

A recent survey compared conventional buildings certified by LEED for Existing Buildings (LEED-EB) and ENERGY STAR, examining a total of 61 buildings.

Buildings with at least one certification averaged a satisfaction score at least seven points higher than uncertified facilities, while those facilities boasting two or more certifications scored even higher.

ENERGY STAR buildings averaged 30-point-higher occupant satisfaction scores, while LEED-EB facilities averaged 10 points higher than those without that certification. The economic and environmental benefit of green buildings seems to have permeated the hearts and minds of our residents.

Several resident surveys have indicated that they would be willing to pay higher rents to live in green buildings. While this may be hard to verify in practice, it is not hard to imagine that a certified property that enthusiastically markets their energy-saving features, improved living comfort, and lower utility bills would be able to ask and receive additional rent from potential prospects. It is also conceivable that these properties would have lower vacancies and faster lease-ups than non-green communities. If that is in fact the case, then it would put green features on par with the typical upgrades and amenities historically pursued by management. This will have a major impact on the funding for energy-related investments. ⚙️



## ENERGY STAR® now

U.S. Environmental Protection Agency (EPA) awarded its first ENERGY STAR certification to 17 apartment buildings in the fourth quarter of 2014.

From New York to Seattle, pioneering owners and their buildings were recognized for the superior energy efficiency of their sites, thereby increasing affordability, protecting public health and tempering climate change. The number of ENERGY STAR-certified multifamily communities is now 36 and growing.

With widespread adoption EPA estimates that multifamily properties could potentially become 30 percent more efficient by 2020 through simple methods of conservation while unlocking as much as \$9 billion in energy savings across the U.S.

It has long been suspected that conservation is fiscally viable inside the multifamily space, but lack of data and subsequent benchmarking has, until now, made both the proof of concept, and ensuing business model, a risky challenge. But now, owners and operators have begun to cross the threshold of cost-benefit analysis as tangible results are documented and shared, national consensus on conservation builds, and key industry leaders join the effort with their support.

It didn't happen by accident and EPA's ENERGY STAR program has been a strong driver in the shift. As early as 2012, the widespread lack of apartment energy use data was becoming more evident and problematic. State, local and federal policymakers, residents, utilities, lenders, even the asset owners themselves, had little data and few measurements on the energy perform-

ance of their buildings or communities. This made it impossible to quantify energy efficiency, much less chart progress as improvements were made in communities.

Still, there were significant barriers to collecting data and benchmarking the utility use of apartments across the country. Yet the walls were closing in on owners as they were required to comply with more and greater regulations to report their communities' utility use. On the government side, the demand for benchmarking and disclosure was intended to drive market competition for energy-efficient buildings. Compiling and benchmarking energy use had already been a policy strategy in Europe, China and Australia for over a decade and a half, and showed marked success in bolstering conservation and reducing energy use across populations.

Recent shifts in the U.S. economy have also bolstered the benefits of conservation in a more tangible way. The intersection of rising utility costs and advancing technology means that projected paybacks on conservation continue to shorten and become viable in the business world. This equates to savings on the bottom line inside a community's operations and helps fuel the business of apartments through cost recovery, cash flow, and even asset value. The business model is becoming clear as benchmarking provides a spotlight on profit-driven results that more and more apartment owners and operators are starting to endorse.

### The ENERGY STAR alliance

In addition to driving the practice of benchmarking with initiatives like ENERGY STAR certifications and its National Building Competition, EPA has bolstered the commercial environment of conservation by connecting major industry leaders to the program, creating direct and fiscal benefits to benchmarking and curbing energy waste. Since the launch of the ENERGY STAR certification for existing multifamily buildings, EPA has formed alliances with many of the major industry players including the NAA (National Apartment Association), NMHC (National Multifamily Housing Council), Urban Land Institute, and lenders, Fannie Mae and Freddie Mac.

While the benefits of energy efficiency typically present in a property's operational spreadsheet delivering better cash flow and servicing terms, green certifications now have an even more immediate line of sight to payoffs. In fact, Fannie Mae, the largest multifamily lender in the country, awards a 10 basis point reduction in interest rates for apartment communities with a green certification such as ENERGY STAR.

ENERGY STAR is also cooperating with private certification organizations such as the U.S. Green Building Council. USGBC's LEED certification, a broad-spectrum award that specifically identifies green buildings with low environmental impact, has also leveraged the offerings of the ENERGY STAR program.

USGBC is a private organization that certifies buildings based on their impact on human health and the planet. LEED certification recognizes buildings with low to no environmental impact, and extends to the human behavior of those occupying those buildings (e.g., commuting, recycling, using paper cups versus ceramic). A LEED-certified building can also receive an ENERGY STAR certification in addition to its LEED certification. Such a linkage makes ENER-

## Legislative landscape

Some of the latest legislation to affect apartment utilities has come from California, Texas and Chicago.

**California:** California Senate Bill 7 was introduced in January of 2015. SB 7 represents a continuation of the 2014 legislative attempt to mandate installation of submeters in newly constructed buildings and to regulate resident billing via Senate Bills 750 and 411. Neither SB 750 nor 411 advanced from the Assembly Water, Parks & Wildlife

Committee in 2014 due to drafting issues that could not be rectified during the legislative session. The sponsor of SB 7, tenants' rights lobbyists, apartment association lobbyists, and utility billing companies are working on overcoming the drafting obstacles to ensure that SB 7 becomes law with terms that are agreeable to all parties.

**Texas:** Regulatory oversight of water and sewer submetered and allocated billing transferred from the Texas Commission on

Environmental Quality (TCEQ) to the Texas Public Utilities Commission (PUC) on August 1, 2014. The PUC adopted the TCEQ Regulations in total and will not make substantive changes until after August 1, 2015. The PUC will perform rulemaking procedures to modify the existing regulations. These proceedings present an opportunity to modify regulations that have been in effect since 2003. Properties must now register with the PUC instead of the TCEQ. The PUC is reaching out to properties not registered with TCEQ to obtain information to settle resident disputes. Owners should comply with the

GY STAR a value add for those pursuing LEED certification, and verifies that the building is both sustainable (LEED) and will operate within the highest standards of energy efficiency (ENERGY STAR).

### The ENERGY STAR effect

Since 2000, EPA has accrued building data through its ENERGY STAR Portfolio Manager® tool for hundreds of thousands of buildings across sectors. And the data is fascinating. A study of 35,000 buildings revealed that those that benchmark their energy data consistently decreased their energy use by 7 percent (2.4 percent annually) and increased their ENERGY STAR score by a margin of 6 points over a 3-year period. Those properties or buildings that start the process as some of the least efficient or begin at a baseline below the industry average, are typically the sites that achieve the greatest savings. Such buildings go on to save twice as much as other buildings in their industry who began the process at above average levels of energy performance.

The ENERGY STAR Portfolio Manager is a 2-pronged platform offering both performance tracking and metrics. Once implemented by the building owner or manager, it allows for tracking changes in energy, water, greenhouse gases and their costs over time. Using the same basic data on energy use, and physical and operational characteristics of the building, Portfolio Manager also provides owners and operators with key performance analytics. These metrics include source and site energy consumption, un-normalized and normalized (for weather and operational characteristics) energy use intensity, and many more.

In addition, many types of buildings, including multifamily assets, can receive a 1-100 ENERGY STAR score. This score provides a comparison of the building's performance against its peers from across the country, where the national median is a

score of 50. A score of 75 or above is considered superior performance and makes the building eligible for ENERGY STAR certification.

The 1-100 ENERGY STAR score for multifamily properties is based on a calculation that considers gross square footage, number of units and property type (low-rise, mid-rise or high-rise) and total number of bedrooms. Property owners must include 12 full calendar months of energy data for all fuels and for the entire property (including common areas and resident units). Finally, the property's zip code is needed to retrieve data and adjust for local climate and weather.

EPA recognizes that most managers don't have access to whole property energy data, and getting this data will be quite a challenge. So in these cases, EPA recommends benchmarking and tracking whatever is available, which may be only common areas and submeters controlled by the property. While it doesn't qualify for ENERGY STAR certification, making whole-property estimates is possible by using USGBC guidance and new guidelines that are set to soon be available from the U.S. Department of Housing and Urban Development (HUD).

Michael Zatz, manager of ENERGY STAR Commercial Buildings at EPA presented an update on the program at the recent NWP Energy Summit 2015 in Washington, D.C. in March. He suggests that asset managers also ask local utilities to consider providing aggregate whole property data for their properties, as some utilities are already doing in places like Chicago, Washington, D.C., and New York City, just to name a few. Quick start guides, short "Express Videos," and live webinars offer free training on Portfolio Manager and are available at the ENERGY STAR website.

### The ENERGY STAR cache'

EPA's ENERGY STAR certification is reserved for the top 25 percent of the

nation's buildings. Such buildings use 35 percent less energy and emit 35 percent less CO<sup>2</sup> than other buildings, on average. The ENERGY STAR certification is already found on over 4.8 billion products, 25,000 commercial buildings, and 1.5 million single-family homes.

The value proposition of ENERGY STAR has made its way to the spreadsheets of the nation's owners and operators. Apartment REITs and private companies across the country that have already earned the ENERGY STAR designation include the nation's largest apartment manager, Charleston, S.C., headquartered Greystar Real Estate Partners, LLC. with 393,079 units under management; AvalonBay Communities, Inc. headquartered in Arlington, Virginia, with 71,734 units; and ForestCity Residential Group, Inc. headquartered in Cleveland, Ohio, with 35,779 units under management.

Whether appliances or apartments, the ENERGY STAR brand communicates credibility and transparency to residents, and reaches over 1.5 billion people every month. "We're here to help you reduce your energy use," says Zatz. "We have no other agenda."

Zatz encourages those property owners and operators interested in giving their properties the ENERGY STAR advantage to check out the library of training videos, step-by-step documents and webinars at [energystar.gov/buildingshelp](http://energystar.gov/buildingshelp). In addition to benchmarking with Portfolio Manager and pursuing ENERGY STAR certification, there are other ENERGY STAR activities that can greatly benefit apartment owners and managers. One of note is the program's National Building Competition, an annual national competition to see which buildings can eliminate the most energy use over the course of a single year. In four years the event has grown to over 5,500 buildings and 112 teams participating in 2014 and promises to be even bigger in 2015. Learn more and register at [www.energystar.gov/buildingcontest](http://www.energystar.gov/buildingcontest). ⚙

PUC's requests and can engage NWP's Regulatory Department with questions, concerns, or requests for assistance. Please note that the PUC is **not** stating that there is an open or pending investigation when PUC requests contact information.

**Illinois:** Residential buildings 250,000 sq. ft. or bigger are subject to the City of Chicago Energy Benchmarking Ordinance beginning June 1. The ordinance is intended to drive awareness and transparency to help unlock energy cost savings opportunities. Affected buildings will receive a notification letter from the City by the end of

April with a unique building I.D. number and instructions on how to comply by the August 1 deadline. CAA held two panel discussions on the new measure and additional training opportunities are available from the City. For more visit [www.cityofchicago.org/energybenchmarking](http://www.cityofchicago.org/energybenchmarking)

In other states such as Massachusetts, both Boston and Cambridge have energy disclosure regulations that took effect in May, 2015. Many other cities passed similar regulation this year that impacts multifamily including Berkeley, Calif., Philadelphia, and Atlanta. 🌞



**Michael Foote** is senior regulatory and corporate counsel at NWP where he's been on the legal team since 2008. Prior to NWP Foote was general counsel for ista North America, Inc. He has 15 years experience with utility billing law and is regarded an industry expert.



## What's all the flap about?

We have a leak. A big one.

Environmental Protection Agency (EPA) says that America loses a trillion gallons of water every year to leaks. Malfunctioning sprinkler heads, drippy faucets and especially faulty toilets are just some of the culprits. It's what some refer to as deferred maintenance and neither lenders nor potential property buyers look kindly on such a practice. Nor does it fair well with residents stuck with paying higher-than-average water bills for no perceivable benefit.

While leak abatement is an important focus for homeowners, it is magnified to staggering numbers for the apartment owners and operators across their portfolios. From the property owners position, water leaks, especially in our nation's water-challenged and conservation-minded environment, are all on the downside, both economically and public image-wise. Because most cost analyses suggest an immediate payoff, leak remediation is best prioritized, identified and remedied.

On the accounting side of operations,

leaks are an invisible albeit significant line item. On average, a single household leaks over 10,000 gallons of water every year. That's enough water to do 5 loads of laundry a week for that same household. It also adds as much as 10 percent to the water bill—an expense that yields absolutely no gain or advantage to the individual paying the bill. It might be thought of as a cost premium for inadequate maintenance. Good maintenance is a necessary investment that protects asset value, mitigates risk and builds resident retention. It's simply good business for running a multifamily property.

California needs 11 trillion gallons of water to resolve its present drought and the ensuing vegetable and fruit shortage already affecting the nation. The one trillion gallons that fixed leaks would save in water would be a good start. It's hard to imagine that we are sending perfectly good drinking water down the drain, or worse, into the walls or floors of our apartment buildings. And while tap water is still far less expen-

sive than bottled water, its cost is set to rise as much as 30 percent in the next year in some parts of the country.

### The slow moving thief

The irony is that such leaks are hardly invisible; some are downright obvious. Still, a drip or two from a kitchen faucet is easier to spot than the slow leak of a toilet flapper tucked away inside the tank. But EPA cites faulty toilet flappers as one of the biggest culprits of wasted water. And yet, at about \$3.00 for a new flapper and requiring less than 10 minutes to install, it's also one of the cheapest and easiest issues to fix.

Still, while faulty flappers are harder to spot, they are, many times, easier to hear. Worn out flappers often provide signals that they need to be replaced. Phantom flushes, that is, the toilet mysteriously flushing on its own at random times, means the toilet is losing enough water that it sets off a refill. Other times there's simply a low humming sound of water running from inside the tank, which means the toilet is steadily allowing water to seep from the tank into the bowl.

The cause is not always a worn or aged flapper, and replacement is not always the answer. While most residents clean their toilet on a regular basis, they typically focus on those parts that can be seen like the bowl and the seat. But there's often a build up of grime around the rim of the flapper inhibiting it from seating properly on the gasket. So while the flapper itself may be relatively new and in good physical shape, any build up of residue can cause a break in the seal,



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which is necessary for a properly functioning flapper; this, in turn, allows water to leak through and the rate of loss is dependent on the level of build-up.

Another hindrance to proper flapper functioning is the dreaded chlorine tablet. Foreign objects dropped in the tank such as chlorine tablets, used by residents to keep their tanks clean, can inhibit proper flapper function as it breaks down into small pieces that float around the tank. These pieces then wedge on the rim of the gasket precluding the flapper from closing. To make matters worse, chlorine tablets chemically break down the polymer material that most flappers are made from, and prematurely age and warp the flapper so that the seal is not secure. Suddenly this \$3.00 item can be linked to thousands of dollars in loss.

A continuously running toilet loses, on average, 250 gallons of water a day costing a property an added \$45,000 per year. Maybe a resident will report it. More likely, they won't. It's simply impossible to rely on residents to red-flag potential toilet issues because such leaks are less obvious and the anatomy and proper operation of a toilet is less widely known.

### Know thy toilet

A community-level education program (resident communication, emails and flyers coaching residents on conservation, how to keep flappers clean and when to report issues) can help, but the cost-risk analysis typically supports some type of flapper replacement program as an essential step. Knowledge still goes a long way and it can be most helpful to provide residents with a general understanding of toilet function and dissuade the use of chlorine tablets and other foreign objects in the tank.

Still, it's easy to understand why many apartment owners and managers have launched regularly scheduled flapper replacement programs at their properties. Some replace toilet flappers unit-by-unit upon turn over; others replace all flappers at a property at a certain time of year. The bottom line is to stay ahead of leaks, which can then buy time to educate residents.

National Fix-a-Leak-Week, launched by EPA in 2009, occurs every March. It's an excellent opportunity to look for rebates and other specific offers by Federal, state and local municipalities and utility providers, and often include special offers on things like flappers that can make such a property initiative low or no cost.

As water costs rise over the next twelve months, the cost analysis will only continue to support regular flapper replacement. ⚙️

## The anatomy of a toilet

Time is short and conservation measures need to happen now—just ask California Governor Jerry Brown who on April 1 implemented unprecedented mandatory water restrictions due to dwindling water supplies. In an effort to make the most of our time, Bell Partners has monitored the water usage of over 24,000 individual apartment units. By partnering with Utility Sentry a leading leak detection company, we were able to save in excess of 33 million gallons of water in just 12 months.

We found that 98 percent of excess water use in apartments was the result of water flow in the toilets. The vast majority of the time the problem was the toilet flapper.

Armed with indisputable evidence that toilet flappers were the culprit for millions of gallons of wasted water, we decided to simply replace the toilet flappers in all 370 apartment units at an apartment community in North Carolina. We concluded that proactively alleviating leaks—versus reacting to them—was the best approach.

We continued to monitor the daily water usage and high usage alerts, expecting them to dramatically decline after the replacements had been completed. Instead, after three months we had not observed a dramatic reduction in the water usage of the apartment units, nor had we seen much of a reduction in the occurrence of high usage alerts. While acknowledging that flappers are not precision devices, it turns out that toilets are a little more complicated than we gave them credit for!

Issues that may cause toilet leaks even after a flapper change:

1. Damaged, uneven lip where the flapper makes contact. (Sand the lip in the bottom of the tank flat to fix.)
2. Partial flush cycle which does not properly seal the flapper. i.e., the flapper only closes half way but does not have enough force to completely seal.
3. Issues with the fill valve.
4. Additional products put in the tank by residents.

5. Damaged flush arm (may make contact with the side of the bowl).
6. Improper chain length.
7. Improper adjustment of the fill float (water runs into the fill tube.)
8. Improper alignment of fill valve, float, flush arm, and flapper.
9. Swollen tank gasket that obstructs the flapper seal (the installer may have cranked the nut in the bottom of the tank too tight causing the gasket to wrinkle/flip up so that the flapper seal is not complete).
10. Remaining debris in tank bottom that obstructs the flapper seal.

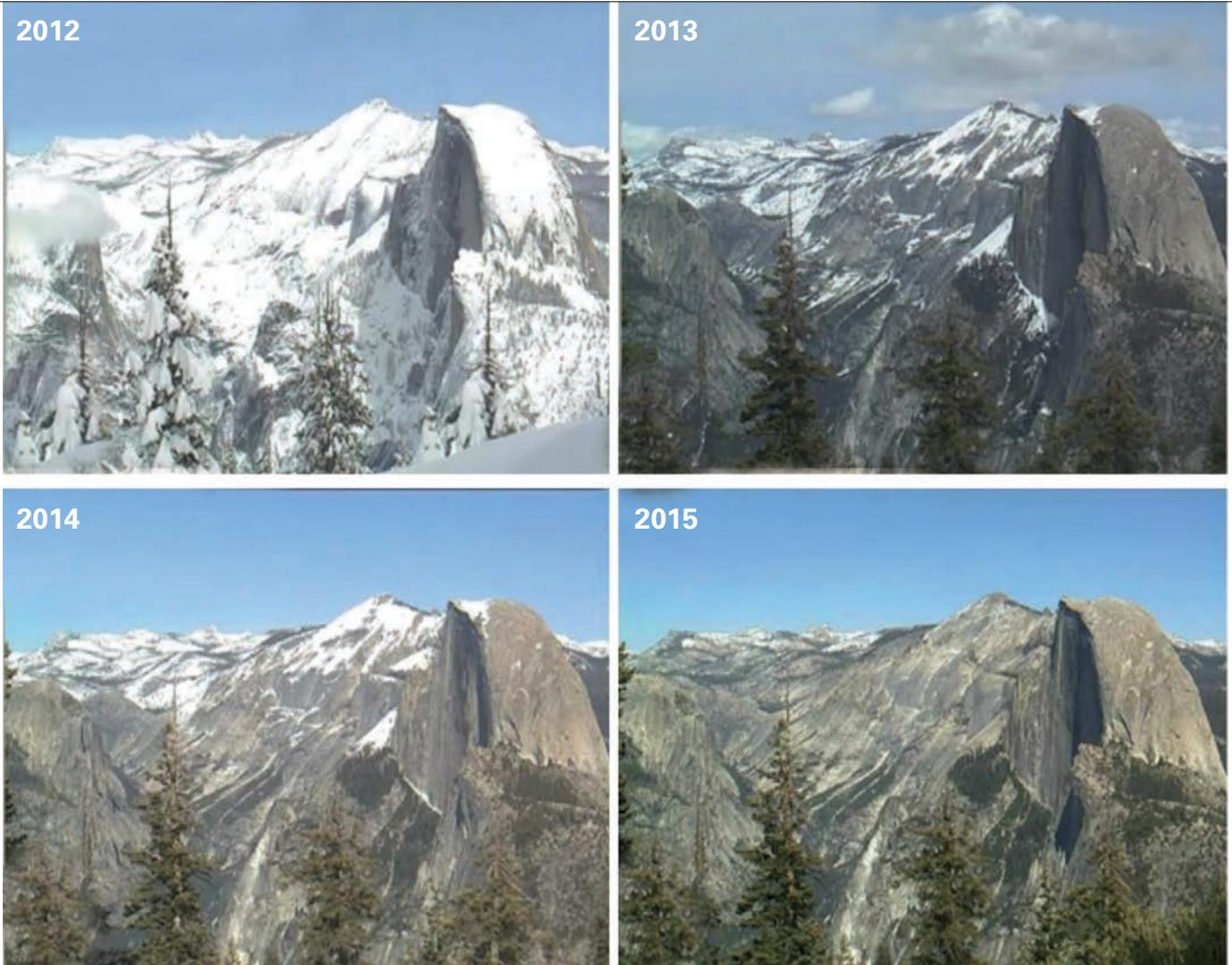


At present the results indicate that Utility Sentry's leak detection service is more valuable than we realized. We'll continue to improve our reaction to the alerts that come in (daily at some properties).

We will continue to manage water use in an effort to save water and money—something that makes sense for those serious about conservation. ⚙️



**Wes Winterstein** is Vice President of Utility Management 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.



## Uncharted waters: combatting the drought

One thing we know for sure—It will take a long time for the country to adjust to the drought across the western states, particularly in California. But this is about more than California. It's about economics. And it's about apartment utilities.

First, economics: California is the largest federal taxpayer of all U.S. states, paying more than it receives in federal spending. What happens in California permeates the nation not only in tax dollars, but in sustenance: it's also the world's fifth largest supplier of food with over 450 different crops, many of which are grown exclusively in the state. Lest we forget, this includes being the world's fourth largest wine producer. Overall, California's \$2.2 trillion annual economy makes it the seventh largest in the world.

Then there is the business of apartments.

California has a lot of them. In addition to hundreds of worldwide headquarters including Google, Apple, and Hewlett Packard that support its rental market, California is home to the third highest percentage of renters in the nation (16.8 percent of its population) behind only Washington, D.C. (35.7 percent) and New York (23.7 percent). With nearly one million apartments in the Golden State alone, the four-year drought and its ramifications are sure to redefine how apartment owners across the nation deal with water and other utilities

The Sierra Nevada snowpack is at 5 percent of normal, the lowest since record keeping began in 1950. The drought has resulted in nearly non-existent snowcap where there was, on average, at least 4-ft. plus of snow at this time of year. Snowcaps melt in the spring and summer replenishing groundwater and reservoirs.

now and into the future.

Of course, a few months of rain could change everything, right? Not likely. It is true that climatologists point to the El Nino weather phenomenon as a possible source of some relief over the long-run. But even that is a 50/50 guess among experts. The National Oceanic and Atmospheric Administration's (NOAA) Climate Prediction Center recently announced that this year's weak El Nino is emerging too late in the season to bring any relief to California. In fact, it's more likely to bring more spring rain to the coast along the Gulf of Mexico. NOAA notes that only three of the past years El Nino was present have brought above-average rainfall to California during March-April-May.

It's important to note that conservation has long-been as much a part of the California story as renewable energy. But culture and conviction was not enough to overcome the scale and ensuing water shortage of the present drought.

What began as encouragement toward a voluntary reduction of 20 percent has now become an executive order by Governor Jerry Brown mandating unprecedented restrictions in water use. The lack of moisture in the way of snow pack this winter during what is normally the state's wet season, has sparked a notable 25 percent reduction in water use for lawns, golf courses and commercial entities backed by stiff fines.

Tough decisions are still ahead with regard to prioritizing water supply according to its effect on the ecosystem, the importance of food supply, and the ensuing economic and psychological impacts.

The broad stroke of constricting water use by a quarter will create an interesting decision-making process as apartment owners and renters, alike, prioritize practical need with the new normal of available resources. At first glance, it seems logical to favor maximizing the return on investment (ROI) of the water used. But what does that mean in practical terms for the apartment owner competing in today's rental market? How are owners to navigate the obstacles whereby residents are ultimately responsible for water use, and landscapes are a key component of leasing and retaining residents?

Curb appeal and lush property landscapes are often leverage for apartments to garner market-competitive rents. In fact, effective rents are at record highs right now. California water rates, not counting any accrued penalties, are predicted to rise by 30 percent in the next year. Such an increase would easily net a shortened return on replacing water-thirsty landscapes with less demanding designs. Could this be the apex whereby the cost of replacing lush landscapes for drought-tolerant designs finally makes financial sense?

In fact, such cost analyses and other topics related to conservation were hot topics at NWP's Energy Summit 2015 held in Washington, D.C. in March. Case studies were presented by apartment operators from around the country, and addressed field-tested methods for controlling rising utility costs by way of conservation, while protecting a property's asset value. Here are two that explore very different issues but involve the same major resource.

### Stopping leaks

Tom Spangler is Acting Senior Director

with Greystar, headquartered in Charleston, South Carolina. Greystar is the country's largest manager of apartments with just under 400,000 units within its portfolio. The company currently owns a global portfolio of over \$9.2 billion in assets with another \$3.3 billion of projects in the development pipeline.

Spangler's first case study began with a Florida property where water usage abruptly spiked nearly doubling its water spend from \$11,000 a month to over \$21,000 a month. The property typically averaged about 100 gallons per unit, per day, but over the course of a 30-day billing cycle, the number doubled to 213 gallons. The site team was immediately notified to locate the presumed leak. After all, an extra 3,000-plus gallons of water should be obvious, right? Not really.

After a thorough visual inspection yielded no clues, the next logical conclusion was that the leak must be underground or in a less obvious or deeper place.

Greystar's next step was to hire a specialized consultant to install leak detection monitoring devices on all of the water meters to analyze and measure each pulse of water throughout the property. The devices provide real-time alerts whenever usage strays beyond historical thresholds.

Water Signal, headquartered in Alpharetta, Georgia, was hired for monitoring. The Water Signal team quickly pinpointed the leak under a courtyard fountain. The fountain was designed to only use reclaimed water, but a three-quarters inch domestic water line had been erroneously connected to the recirculating system. It was adding fresh water to the fountain on a continuous basis, which in turn, simply went down the overflow drain. The \$11,000 water waste was quickly rectified which brought the property's water spending back to normal levels.

Spangler concluded that while every property may not think they need real time monitoring, the service is an insurance policy against future leaks and easily paid for itself with a single leak and within a 60-day timeframe.

### A sprinkle of savings

U.S. Environmental Protection Agency EPA estimates that as much as 50 percent of water used for irrigation is wasted due to evaporation, wind or runoff caused by inefficient systems. This can rise as high as 60 percent in water-challenged areas like the southwest. Over-watered landscapes can also, and quite easily, result in property damage, fiscal liability and elevated sewer costs.

While water and sewer are historically

one of the highest line items on a property's P&L statement, it is often overlooked when passed through to the resident.

Spangler's second case study provided the results of saving water at multifamily properties through smart irrigation. Greystar hired HydroPoint Data Systems, Inc. to run an analysis on the water used for irrigation at three properties located in Mesa and Phoenix, Arizona, and Colorado Springs, Colorado, based on their high water bills. A trifecta of rising costs, suspected water waste and poor landscape health compelled the in-depth assessment of the properties' irrigation systems and their efficiency. Greystar was looking to benchmark water use against best practices and regionally appropriate water use.

After establishing a baseline on the water used for irrigation at each property, they installed their WeatherTRAK smart irrigation controllers at the three sites. The property in Mesa, Arizona, saw an immediate savings of 25 percent less water use, realizing an annual savings of 2,332,000 gallons of water. This meant an increase of \$14,109 to the property each subsequent year.

A revised irrigation plan at the Phoenix property resulted in a 26 percent decrease in water use, even in the hottest, peak irrigation months of the year. This translated to more than \$40,000 in savings annually.

Still, the Colorado Springs property yielded the golden ticket. The site saved over \$7,303 in water used within the first 60 days, setting in motion a ROI period of a mere 15 months.

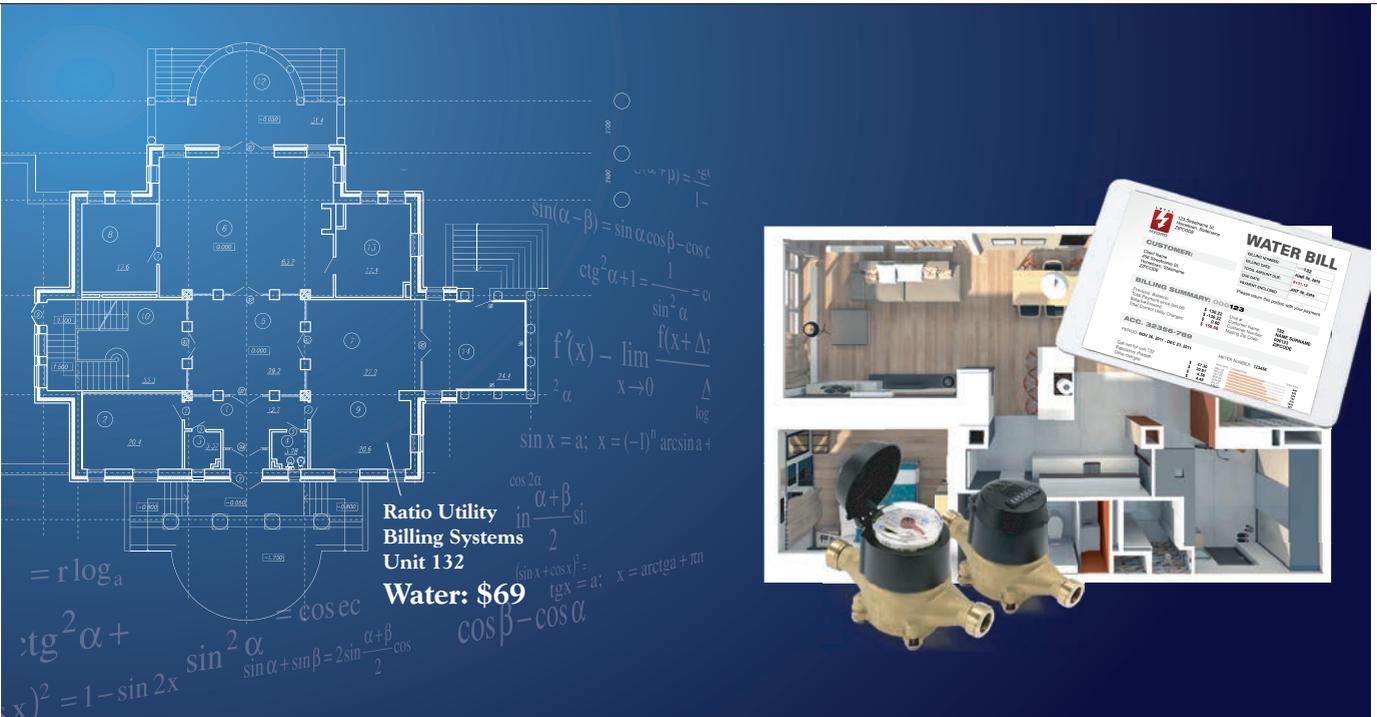
The irony is that landscape health actually improved by virtue of a more efficient system, creating asset value and improved curb appeal. The added bonus is that the smart irrigation system delivers operational efficiency with remote visibility and controls of the system and the community grounds.

Smart irrigation is now one of Spangler's top water savings tools since his beta tests in Arizona and Colorado.

### Conclusion

There are many tried-and-true ways to generate cash flow, bolster asset value and encourage utility conservation. The estimated wasted water across our country is particularly significant, and the cost of water promises to only rise in the years ahead.

Apartment owners and operators who manage conventional assets are generally compelled to operate by cost-benefit analysis for any retrofit or operational decision. Determining which retrofits produce the greatest value for the dollar is the best way to prioritize how to mitigate rising costs. ☀



## RUBS or submeter?

Submetering enables utility cost recovery as it allows utility billing providers like NWP to allocate utility charges to residents based on actual consumption, helping property owners recover several hundred dollars per unit in annual operating expense.

Submetering increases property value because it is a capital investment that leads to increased recurring revenue. You gain resident support as residents appreciate the assurance that they are being charged based on actual consumption.

Industry reports show that you can conserve valuable resources as submetering stimulates conservation: submetered properties use 20-30 percent less water. Still, a case can be made for RUBS (ratio utility billing system) under the right circumstances as proven by one asset manager in Indiana.

Gabrielle Gonzalez is vice president of property and asset management for J.C. Hart, headquartered in Carmel, Indiana. Named 2014 Carmel Business of the Year, the private company manages over 4,200 apartment units primarily located in Central Indiana. J.C. Hart is in its 40th year of operation and spans development, construction and management services throughout the great state of Indiana.

At NWP's 2015 Energy Summit, Gonzalez presented a case study comparing the benefits of RUBS against the cost of repairing and updating the legacy submeters already installed at her properties. The overarching objective of her initiative was to

increase property income while reducing expense and improving asset value. She sought to accomplish these goals by stabilizing resident utility billing, while devising both the fastest and most efficient way to solve the costly challenge of outdated and malfunctioning submeters.

Through the years, the inoperative submeters on her properties had steadily grown in number. After analysis, Gonzalez determined that shuttering the submeter program in favor of a RUBS billing would net a faster yield and more favorable return in the short-term time.

Before launching the new RUBS initiative, the legacy submeters had become a real thorn in the operation and their unreliability was costing upwards of 67 percent of the generated income to maintain. Maintenance of the equipment was hemorrhaging costs for an inadequate result.

In order to identify, and repair or replace multiple malfunctioning submeters, Gonzalez would have needed to invest in cumbersome auditing to identify the problem units, and then spend time and resources to complete the maintenance and repair necessary to get the submeters operating at full speed.

The projected cost and time to replace

and service the submeters and related equipment, and bring the entire system to full operating capacity in order to net a positive gain turned out to be cost prohibitive. The estimated cost of replacing the submeters was \$45,000 per property.

Aside from the projected hard costs of such an endeavor, the ongoing inconsistencies in billing and perceived lack of confidence in meter reliability was creating a customer service issue amongst her residents that was hard to tangibly quantify. Still, negative tension grew with every billing cycle.

Gonzalez discontinued the use of submeters at her existing properties and implemented a RUBS program through NWP.

### Conclusion

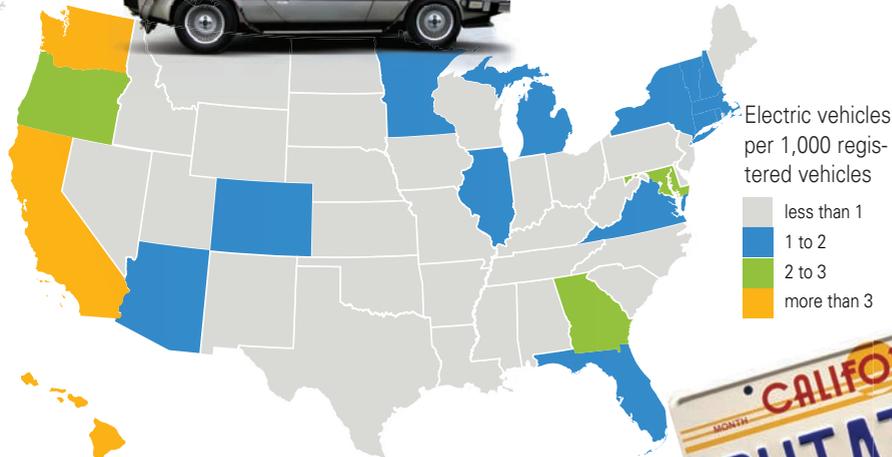
Her projections and subsequent plan not only had an impact on the company's existing properties, but in the development of new communities. J.C. Hart has opted to forgo the purchase and installation of submeters on 5 of their new projects and their second phases. They've standardized their CADs (common area deductions) and have now implemented RUBS across those properties set to come online.

The properties are now collecting 97 percent, on average, of water, sewer and trash expense. Annual savings is estimated at over half a million dollars.

Using capitalization rate of 6.25 percent, this decision increased the portfolio asset value by \$8 million.

For a counterpoint to the RUBS method, read <http://utilitysmartpro.com/multifamily-leading-water-conservation>

California leads the nation in the adoption of electric vehicles



SOURCE: U.S. ENERGY INFORMATION ADMINISTRATION, BASED ON FEDERAL HIGHWAY ADMINISTRATION DATA AND R.L. POLK & COMPANY.



## Back to the charging station

July 3, 2015, is the 30th anniversary of the Academy Award winning movie, *Back to the Future*. If you have spent the last 30 years under a rock, you may be unfamiliar with this sci-fi masterpiece.

A brief synopsis: high school student, Marty McFly, is sent back in time in a hot rod DeLorean time machine, discovers his teenage parents, and must get back to 1985.

What is significant to me about this movie is 1. the car (which is awesome) and 2. the sequel (*Back to the Future II*) takes place in the year 2015. It's most impressive how *Back to the Future II* accurately predicts a number of technological changes, such flat panel television sets, the ability to watch six channels at once, Internet video chat, the increase of plastic surgery, hover boards and cars with alternative fuel sources (dubbed Mr. Fusion).

Imagine. The same year that Dodge Durango was produced, a film hit the cinema suggesting powering vehicles with fuel other than gasoline. (Ok, for the nerds out there, *technically* the DeLorean is a hybrid, but you get my point.) I appreciate how the

past (1989) has informed the present.

This brings me to electric vehicles (EV) and charging them on multifamily properties.

Recently, legislation passed in California (AB 2565) which permits residents to install an EV charging station at their cost on *your* property. You cannot unreasonably deny them. The law does afford the landlord some rights: we may direct residents as to which electrician they can use, which charging stations they can install, require a submeter on the charging station to track electrical use so we can be reimbursed for the electricity when the resident taps into the house panel, etc.

Such a law does compel us to prepare to retrofit our existing properties with EV charging stations. Some of you might say, "well, if as long as I don't have to pay for it, whatever." Considering the full ramifications: Who pulls the permit? If the resident decides not to pay the electrician, the lien is against *your* property, not the resident. What if there is an incident involving the charging station, are you at risk? How do you manage this process? If you have proper-

ties in California, it serves you to become versed in this law. Google it.

If you do not have properties in California, consider this. EV sales are rising. If you think that states with growing EV sales will not integrate EV charging on our properties, that might be naïve. Think about how many states are considering legalizing weed now that Colorado has done it successfully. (Yup, I just compared EV charging to weed.) I believe that if AB 2565 is successful in California and increases EV ownership, this law may be cloned in states that, perhaps, you do care about.

The real question we should ask ourselves is "How EV-ready *can* I be?" When we think about adding EV charging stations to our communities, we should consider what that charger might do to our electrical panels. And are you prepared for a level 2 charging station?

What does level 2 even mean? Think of it as adding an air conditioner to a 3,000-ft. house in a high desert location. I recommend a load study before you pick the perfect spot to install your charging station. What is perfect and what is plausible might not be the same.

Currently there are more than 300,000 electric vehicles are on the road worldwide. With the sticker price on these cars coming down, battery range improving, gas prices rising, and the marketing push of these vehicles increasing, the demand for EV will continue to increase. I know that we have been scratching our collective multifamily heads trying to determine how EV-ready should we be?

Take a look inside your parking structures. Do you have a significant number of hybrid vehicles? If you do, you're probably attracting a demographic that will want to drive EV's for a myriad of reasons. While California leads the nation in EV sales (if you have property in this state, look closely), it is important to note that Hawaii, Oregon, Washington and Georgia are rapidly adopting EVs, as well.

In the year 2045, what is today will be the past. Most of us will be even less hip than we are today (and probably crankier). 2015 is our moment to get in sync with the future.

Consider where technology is today, the path we are following, and contemplate how you are going to prep your sites to be ready for that world of tomorrow. How retro will you want to be? Will retro even be considered a good thing? When we get *Back to the Future*, how EV prepared will we be? ⚙️



**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 with over 400 bhp, in her driveway in Northern California.

# Multifamily energy disclosure requirements



For more information, go to [www.nwpsc.com/locallaw](http://www.nwpsc.com/locallaw)

| TOWN                    | LAW / ACTION  | BLDG SIZE   | DISCLOSE TO   | PENALTIES FOR INCOMPLIANCE  | ANNUAL DEADLINE |
|-------------------------|---|---|---|---|-----------------|
| <b>Austin</b>           | <b>Energy Conservation Audit &amp; Disclosure (ECAD)</b> Unlike many other energy disclosure laws, Austin does not require multifamily owners to report annual building usage data for energy or water. (However, energy audit is required every 10 years and high use properties have mandatory usage reductions.) | All complexes (no minimum size)   | Residents and buyers upon request or lease renewal; audit results also must be posted at property | Class C misdemeanor and subject to fine up to \$500. If criminally negligent, a fine of up to \$2,000 may be assessed.  | N/A             |
| <b>Atlanta</b>          | <b>Commercial Buildings Energy Efficiency Ordinance</b> Multifamily owners must report their usage for energy. Energy audit required every 10 years.  | ≥ 50,000 sq. ft. by 6/1/2016 (≥ 25,000 sq. ft. by 6/1/2017)                           | Government agency (who will disclose on public website) annually                                  | Written notice of first violation; Fine of \$1,000 if 20 days late, an additional \$1,000 every year thereafter   | June 1          |
| <b>Berkeley, Calif.</b> | <b>Berkeley Energy Saving Ordinance (BESO)</b> Multifamily owners must report their usage for energy and water, and complete DOE energy assessment. All buildings > 4 units are required to comply at time of sale. All other buildings are being phased in by building size.                                       | ≥ 50,000 sq. ft. by 10/1/2016 (eventually phasing in all buildings > 4 units by 2020) | Government agency annually  | TBD   | October 1       |
| <b>Boston</b>           | <b>Building Energy Reporting and Disclosure</b> Owner must report whole building data for energy and water. This includes aggregated resident data which can be obtained from the utility providers. (Also, every 5 years an energy assessment or energy action is generally required.)                             | > 50,000 sq. ft. or 50 units by 5/15/2015 (> 35,000 sq. ft. or 35 units by 5/15/2017) | Government agency (who will disclose on public website) annually                                  | 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. | May 15          |
| <b>Cambridge, Mass.</b> | <b>Building Energy Use Disclosure Ordinance</b> Owner must report whole building data for electricity, natural gas, steam, fuel oil, and water. This includes aggregated resident data which can be obtained from the utility providers.  | > 49 units by 5/1/2015  | Government agency (who will disclose on public website) annually                                  | City will issue written warning for first violation. Any subsequent violations can be up to \$300 per day.  | June 1          |



| TOWN                | LAW / ACTION  | BLDG SIZE  | DISCLOSE TO  | PENALTIES FOR INCOMPLIANCE  | ANNUAL DEADLINE |
|---------------------|---|--|--|---|-----------------|
| <b>Chicago</b>      | <b>Chicago Energy Use Benchmarking</b> Owner must report whole building data for energy. This includes aggregated resident data which can be obtained from the utility providers. 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) | Government agency (who will disclose on public website) annually | \$100 to building owner for first violation, \$25 per day after that if not fixed.  | June 1          |
| <b>DC</b>           | <b>Clean and Affordable Energy Act</b> Owner must report whole building data for energy and water. This includes aggregated resident data which can be obtained from the utility providers.   | > 50,000 sq. ft.   | Government agency (who will disclose on public website) 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. | April 1         |
| <b>NYC</b>          | <b>Local Law 84</b> Owner must report whole building data for energy and water. This includes aggregated resident data which can be obtained from the utility providers. Audit required every 10 years on buildings > 50,000 sq. ft.                        | > 10,000 sq. ft  | Government agency (who will disclose on public website) annually | \$500; continued failure \$500 per quarter with a maximum of \$2,000.   | May 15          |
| <b>Philadelphia</b> | <b>Building Energy Benchmarking Ordinance</b> Owner must report whole building data for energy and water.   | ≥ 50,000 sq. ft.   | Government agency (who will disclose on public website)          | \$300 fine for the 1st 30 days, and then \$100 per day.   | Nov. 1          |
| <b>Seattle</b>      | <b>Building Energy Benchmarking and Reporting Program</b> Owner must report whole building data for energy. This includes aggregated resident data which can be uploaded to a property's ENERGY STAR account by the utility providers.                      | 5+ units   | Government agency annually; residents and buyers upon request    | Quarterly fines \$500-\$1,000 based on building size. Owner and residents first violation: \$150.   | April 1         |

Some jurisdictions have passed energy disclosure laws that currently do not apply to multifamily: Minneapolis, Portland, San Francisco, Montgomery County (Md.), the state of California, and the state of Washington. This chart is merely an overview and not intended to be a substitute for legal advice.



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