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THE LATEST RESEARCH AND MODELS ON
OPTIMIZING UTILITY USAGE IN MULTIFAMILY
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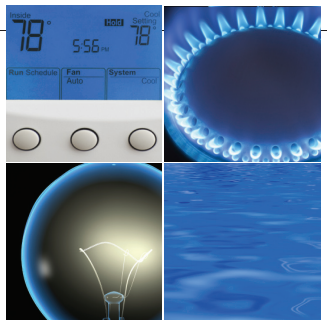

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Now is the time to transform your business

I'm delighted to be here—in this moment, at this time, with this message.

As multifamily housing owners and operators, and those who support their enterprises, we have amazing opportunities before us. At no other time in history have so much technology, research and infrastructure aligned so perfectly to create a laser focus on efficiency of operation, ease of use and, most importantly, tandem value on the bottom line to owners and residents alike.

For decades, businesses have sought to chart the course of their customers in order to better serve their needs, remain ahead of their buying decisions and create products that complement the customer's journey. Multifamily looks to refine this process as it carefully studies the lifecycle of residents with an eye toward expanding such understanding into a complete rental experience that captures the heart of a renter far beyond four walls. It is, after all, the experience that we proffer to residents.

Utility Management sits in a position unlike any other facet of apartment operations. Utilities breath life into a unit and literally animate the life of its resident. Residents' use of utilities inside their apartments and throughout the community are a connection that we are only now beginning to explore, and for the prudent apartment owner, to master to the benefit of all involved.

So how are smart apartment owners influencing this brave new world and capturing the heart of residents through utility management?

It begins by reframing utilities as something beyond a commodity. They are at the heartbeat of how residents live. Reshaping this understanding changes everything, including expectations of what is possible.

And so sets the importance of how we as owners and advisors, manage, and utilize this most valuable service and potential well of insight in order to elevate the lives of our residents.

This was much of the conversation at the Energy Summit held earlier this year in Washington, D.C. From the latest technology and research to thought leadership on the future of utilities, federal agencies, researchers and data scientists shared game-changing insights related to the distribution of water to power and beyond, as it relates to the residents who live in our apartments.

Every story in this issue is a headliner, but just one example comes from the huge amount of research around the health of the "built environment," a term used for indoors in the circle of building scientists.

Our residents, on average, spend 93 percent of their lives indoors. Breathing our air. Using the utilities we distribute. Turning on the lights we power as agents of distribution.

While much has been studied on office and retail space, only in the last few years have we begun to see this research move into the apartment space where its impact is as great or greater to the lives we house.

Paul Scialla, founder of the Well Building Institute and leading authority on the health affects of built spaces, was a speaker at the Energy Summit and shares his insights in "Health: An Inside Job" (p. 6). While the industry is just touching the surface of such insight, I'm fortunate to have a seat with a full view of all that is possible. It's nothing short of transformational for owners and operators and the way business is done around utility billing and management, as well as providing new ways to deliver unprecedented value to residents.

Such optimization inside utility management means lower operating costs, energized staff (because who doesn't love being a hero?) and an accrual of the ever-divine brand-loyalty from residents.

In my two decades inside the multifamily industry, I've never been as excited or as enamored with a service as I am with Utility Management. Technology changes everything and we've moved a previously flat part of apartment operations into a completely new world of value and opportunity.

I look forward to sharing the ways and means to use these tools for the profitability of your business, and to the value of your residents. Buckle in. It's going to be an exciting ride.

Jason Lindwall, Publisher
jason.lindwall@realpage.com

The human link to light

Let's start in the garden. We know that light from LEDs grows plants quicker and healthier than other methods, including natural sunlight. Sunlight contains the full spectrum of colors, giving plants the information needed to grow. Tinkering with this spectrum, which LED lights allow with precision, elicits known and specific responses. Increase the amount of red, yellow, orange and green, and plants grow taller. Add blue or other UV colors and they grow more compactly.

The ability to manage the spectrum of light with intent and purpose is a powerful position that makes strategic and fiscal sense in the world of apartment features. Just as light affects how plants grow, science is discovering a similar relationship to human health. Building this knowledge into common areas, even units, is an especially low-to-no-cost option to make residents feel better, sleep better and know that they are conserving energy at the same time.

LED lights will also be a major component of the smart apartment of the future.

Light and its part in human health

The CRI (Color Rendering Index) is the quantitative measure of light and its effect on human perception. The standard deals with light, illumination, color and color spaces. Specifically, CRI determines how natural the color of objects appears under various lighting. Natural, in this case, means as things appear under color free light (such as sunlight which scores a perfect 100) making it possible for the human eye to identify all colors and shades of an object. Other than sunlight, incandescent bulbs are the only other light source that scores 100, which may explain the market's resistance to their phase-out.

Poor lighting, especially lighting with values below CRI 50, is associated with eyestrain, migraines, depression and more. Simply put, poor lighting does not portray objects in their true color. One extreme example is the High Pressure Sodium (HPS) streetlights, which at 25 CRI, makes everything appear yellow.

A more complete color spectrum—one that contains more colors and more closely emulates sunlight—offers the best indoor human environment, resulting in specific health benefits. Such lighting is often packaged as "full," "wide" or "continuous," but terms vary by manufacturer. Basically, trust your own eyes. If the light looks strange to the human eye, is overly sharp and makes things look inorganic, it has a low CRI value and is probably the result of a simple red-blue LED chip combination.

Artificial light optimized for humans

Unlike incandescent or fluorescent light, LEDs emit light at specific wavelengths. Certain blue wavelengths of light are known to depress the body's production of the hormone melatonin. In nature, the highest level of blue wavelength light reaches the earth's surface in the middle of the day and causes individuals to be more alert. Conversely, warmer light in the evening helps a person wind down, helping to normalize his circadian rhythms and eventually allows restful sleep.

Highly-tuned LED lights are an effective substitute when natural sunlight is insufficient. Human Centric Lighting (HCL) extends beyond simple LED lighting to the health benefits of exposing individuals to variable wavelengths of light throughout the day in order to modulate mood-altering melatonin levels. Because of their ability to generate highly tuned wavelengths, LED lights are ideal for HCL applications, including treating those who suffer from seasonal affective disorder (SAD), depression or anxiety disorders. For the general population, research by A.T. Kearney found evidence that HCL improves concentration, boosts energy and improves the overall feeling of well being. Such benefits would be a boost to any apartment community, and would certainly be a competitive edge.

Reducing the cost of operation

Operationally, many LED lights on the market today generate the same or better illumination as incandescent bulbs with 50 percent less energy input. LEDs' increased efficiency is due, in large part, to the bulb's

energy being utilized to produce light rather than wasteful heat. They last, on average, 40,000 hours compared to incandescent bulbs, which burn out in approximately 1,000 hours. This makes the lifespan of 40 incandescent bulbs equivalent to the longevity of one LED, making the higher (but dramatically falling) upfront cost quickly recoverable.

To minimize energy consumption, any lighting project should include turning the lights off, as well as reducing wattage when the lighting is on. The most cost-effective solution is to add occupancy sensors or basic timers to the light controls in order to reduce the load to zero whenever possible. In restrooms, storage areas and common areas, a simple, inexpensive commercial sensor can easily reduce lighting cost by as much as 70 to 90 percent. Public spaces, stairwells and parking garages are areas that may be lit regardless of occupancy because of safety concerns.

Upgrades to lighting should also include improved fixtures and ballasts that contribute to lower maintenance cost. If fixtures are also being replaced, consider fixtures that allow easy access to the lamp during replacement. Quick connect wiring plugs permit faster and safer installation and maintenance, and sealed housings prevent dirt build-up and corrosion in humid environments. These are just some examples of features that can reduce or even eliminate the need for costly maintenance.

Replacing incandescent, halogen and High-Intensity Discharge (HID) lighting with LED equivalents can also greatly reduce the cooling load. Locations with warmer climates will benefit more from cooler lighting, with savings as high as 1kWh in cooling for every 3kWh reduction in lighting.

All in all, the EPA (Environmental Protection Agency) has calculated that LED lights will save 88 terawatt-hours of electricity from 2010 through 2030—enough to power seven million homes for a year and save around 5 million tons of carbon dioxide annually. LEDs are manufactured with no hazardous materials and can be discarded with no concern about adding hazardous materials to landfills.

LED lights are a rapidly evolving technology that have grown even more energy and cost efficient in a few short years. As engineers and manufacturers hone in on processes, it won't be long before LEDs are a must-have feature of every apartment home.

Resources: Pacific Northwest National Lab, U.S. EPA, National Institutes of Health, Illuminating Engineering Society of North America (IESNA), International Commission on Illumination (CIE) publishes the Color Rendering Index (CRI), Department of Energy.

Legislative and regulatory update

California

California Senate Bill 7 (SB 7) was signed into law by Gov. Jerry Brown, and goes into effect January 1, 2018. Properties that request a water connection from a water utility after that date must demonstrate that the property's units are submetered to measure water consumption.

Additionally, multifamily operators must include specific language in their lease disclosures for water and sewer billing.

Ohio

In September 2013, the *Columbus Post-Dispatch* ran a series of articles about multifamily owners and operators who were marking up the rates that they charged their residents for electric service and allocating more than their expense to residents. Subsequently, legislators introduced three separate bills in 2014 to regulate submetering companies, but none of these bills made it past committee.

In 2016, the legislature introduced two new bills to regulate utility billing by landlords for residents. As in 2014, these bills did not make it out of committee. Apartment associations and billing vendors attempted to jointly craft language with the Office of Consumer Counsel to address recovery and consumer protection interests. These efforts did not produce a bill that could advance in 2016. At the end of 2016, the Public Utilities Commission of Ohio announced that they were opening a generic investigation into submetering, which includes multifamily operators that are recapturing only their utility expense, and multifamily operators that markup rates and allocate to residents more than their utility expense.

It's likely that more than one bill will be introduced this year. Apartment associations and apartment billing partners are introducing language that will allow owners with submetering and RUBS, (Ratio Utility Billing Systems) to recover revenue equal to the amount the property was charged by the utility, plus reasonable administrative fees. Important to note, these groups are not working with the Office of Consumer Counsel in 2017.

New Jersey

In 2011, the New Jersey Board of Public Utilities (BPU) ended its ban on submetering in residential properties in BPU-regulated areas for newly constructed properties. Over the five years since the ban was lifted, BPU and the water utilities it regulates found that submetering benefits utilities, customers, and the State of New Jersey. They will now seek to expand the ability to submeter properties constructed prior to 2011. BPU's preference is for residents to monitor their consumption and directly modify consumption habits based on price signals.

BPU approached the New Jersey Apartment Association (NJAA) for data on existing submetered properties and known conservation benefits. BPU plans on instituting a rule allowing for the expansion of submetering after review of data and internal discussions. NJAA and utility billing service providers are assisting in the data gathering and will participate in any rulemaking or legislative process.

Michael Foote is Vice President, Legal/Utility Billing Compliance at RealPage. Mike joined the RealPage legal team through the 2016 acquisition of NWP Services Corporation, where he had been the Director of Regulatory Services and with NWP since 2008. Mike's expertise in utility billing law is drawn from more than 17 years practicing exclusively in this area.

Health: an inside job

Health is a hot topic these days. From insurance to lifestyle to diet, it's anyone's guess as to the best path to a long and healthy life. Still, what if health had just as much to do with where you spend your days as it does with your behavior?

Even though time spent outdoors has more than doubled since the 1960s, the average American still spends 93 percent of his life indoors—87 percent in buildings and 6 percent in the car, likely moving from building to building, according to the Environmental Protection Agency (EPA). While scientists (and parents) have long suggested that getting outside for some fresh air is good for us, there has been little study on how "these four walls" impact health, how well we function and our feeling of well being until now.

A recent Harvard study was the first to show that working in green-certified buildings can improve productivity*. When looking at the impact of lighting and temperature on office workers, researchers found that occupants in green-certified offices scored 26 percent higher on cognitive tests. Thirty percent had fewer symptoms of sick building syndrome, and 6 percent had higher sleep quality scores than those working in noncertified buildings. Optimizing indoor temperature had a significant impact, with workers scoring 5.4 percent better for cognitive function. Brighter, blue-enriched lighting (emulating daylight) was associated with better sleep quality at night, which, in turn, led to better cognitive performance the following day. A higher contrast between day and night exposure to light regulates the release of melatonin, the hormone responsible for inducing sleep and supporting one's circadian rhythm.

Circadian dysfunction is a predictive factor in Alzheimer's disease.

The National Institute of Health recommends indoor lighting that closely replicates sunlight. The optic nerve's ability to elevate hormones connected to mental acuity and circadian rhythm responds best to this light, which may also stave off a host of illnesses. In the demographic of 50 years of age or older, particularly those spending much of their time indoors, 4 hours a day of exposure to the right type of light has shown a correlation with preventing the onset of Alzheimer's dementia. The number ofAmericans living with this disease is expected to climb to 13.5 million by 2050, according to a report by the Alzheimer's Association.

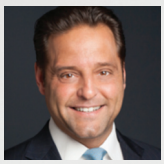
"Our built environment will double over the next century," said Paul Scialla, founder of International WELL Building Institute (IWBI), headquartered in New York. "So it's critical to understand just how our buildings affect the health and well-being of our population. Relatively low and no cost solutions could have great implications to the country's most expensive health care issues of our time."

Last year Scialla spoke at the J. R. Terwilliger's Housing America's Families Forum in Dallas, Texas, and at the RealPage Energy Summit in Washington, D.C. He says that incoming data is beginning to prove a correlation between building operation, maintenance, and cleaning protocols, and our national health.

"Start with the room you are sitting in right now," said Scialla at the Energy Summit. "Think about its potential impact on your health—your cardiovascular health, your immune health, and even how well you think. Consider how the light impacts your optic nerve and circadian rhythm. It can help boost or suppress your mental acuity. It can determine how well you function, how well you feel, and even how deeply you sleep tonight."

Five years ago, IWBI introduced the WELL Building Standard. WELL complements the work of the U.S. Green Building Council (USGBC). USGBC, an affiliate of the American Institute of Architects, headquartered in Washington, D.C., and developer of the LEED (Leadership in Energy and Environmental Design) green building rating system.

At the time of WELL's introduction, Scialla sought to merge medical science and building science with the goal of bettering



Paul Scialla, founder of International WELL Building Institute, spent 18 years on Wall Street, including 10 at Goldman Sachs as a Partner. Paul Scialla's interest in sustainability and altruistic capitalism led him to found Delos, which is merging the world's largest asset class—real estate—with the world's fastest growing industry—wellness. Since the company's inception, Paul has become a leading voice in the sustainability movement, serving as a keynote speaker at prominent green building, real estate, and technology forums and conferences around the world.

the human condition. While a nascent field at the time, it has since been filled with an abundance of research and data supporting the correlation of certain building features, many of which are identified through WELL with healthier occupants. Such data has also attracted and initiated research from stakeholders in health outcomes like the Mayo Clinic.

WELL sets performance standards in seven concepts: air, light, water, nourishment, fitness, comfort, and mind. These protocols inform structural elements like air and water quality, acoustics, thermal comfort and lighting. Other operational standards include maintenance and cleaning protocols. The service or operational component is as much a part of the story as the built environment itself.

"Incoming data is fueling the drive toward healthy buildings, both new and existing. We know that built environments can impact respiratory patterns, heart rate variability, inflammation markers, near and long term stress indicators, cognitive patterns—just about every facet of the human condition," says Scialla. "By making small adjustments to apartment buildings in air quality, circadian-appropriate lighting, air temperature and acoustics, apartment owners and operators are in a unique position to improve the state of the nation's health. Such data can inform policy makers and motivate apartment owners to make simple changes."

How incentives fuel change

The IWBI administers WELL, just as LEED certification is administered by USGBC. Leading the green building movement for over 14 years, LEED certifies billions of square feet in built space, according to a building's energy and environmental design. Fannie Mae now offers up to a 40-basis-point financing discount on green-certified multifamily properties, further incentivizing the momentum toward green. "This combines environmental initiatives with housing initiatives, in order to drive policy," said Scialla. The dawning realization that being green correlates to health outcomes only further bolsters the case for going green.

The WELL Building Standard aims to incorporate preventative, medical intentions into how we design and operate our built environment, says Scialla. And the evidence is growing. By introducing prevention into occupants' daily lives through the buildings they use 90 percent of the time, the nation's built environment can be a vehicle for owners and operators to impact long-term health care costs through real estate.

* The Harvard study examined green-certified buildings across the nation. Researchers at the Harvard T.H. Chan School of Public Health's Center conducted it for Health and the Global Environment (CHGE) and SUNY Upstate Medical. Researchers looked at 10 high-performing buildings in five U.S. cities. The team collaborated with the Office for Sustainability (OFS) and Harvard Real Estate to use Blackstone as a living laboratory to study the relationship between building conditions and occupants' productivity and well being.

The business case for submeters

Few features are as compelling.

It improves cash flow. It increases property value. It simplifies your relationship with residents. Installing submeters eliminates one of the highest expenses on a property with a pay-off term between 14 to 18 months. They increase net operating income (NOI) and make a property's rents more competitive. Social bonus: They demonstrate action for the environment through conservation.

How, exactly, does it pencil? Using rough figures on a 200-unit property with an average water bill of $40 per unit, per month, submeters might increase the property's NOI by up to $96,000 a year. The higher the utility costs, the greater the savings. The cost of retrofitting submeters is also tax-deductible as a capital improvement, and the increase in NOI could add as much as $1 million in value at a multiple of 10 times earnings.

California and a number of other states require submeters on new construction, and twenty-two states, three counties and Washington, D.C., have statutes, regulations or rulings regarding utility billing, with more on the way.

So why isn't there a mad dash to submeter every property on the face of the earth? The answer is usually found somewhere inside perception, between real and imagined: high administrative hurdle, upfront implementation costs and resident opposition are a few.

Every property comes with its own history and—in what is known as a thin-margin business—even cash flow could be argued as another reason to make the leap to submeters. In fact, a property absent submetering is viewed as risk that may inadvertently materialize in the cost of asset valuation and financing.

As conservation permeates the social narrative and legislation, its perceived absence on a property only becomes more obvious. Still, the risk to public reputation is more challenging to quantify than carrying the risk of fluctuating utility prices on a property or in a portfolio. Utility expenses are intrinsically volatile. Reassigning these costs to the user (resident) naturally delivers transparency and the incentive to conserve on the part of the consumer. Yet, pockets of resistance remain.

Some property owners and operators have even gone so far as to mothball old or unmaintained submeters instead, using RUBS or other calculated billing programs in a need for ease, convenience and cost-cutting.

A little knowledge goes a long way

The business case for submeters is compelling, as is the business case for maintenance on a property where submeters are already in place.

Submeters are technology. As such, they require periodic updates, service and monitoring. Like any asset, without scheduled monitoring, problems can accumulate resulting in deferred maintenance and adverse exposure to residents.

Simple best practices easily tip the low-cost of a submeter maintenance plan toward overall savings for both owner and resident. Focusing on the operational profitability of any asset not only increases asset value, but also, when maintained under a unified strategy, yields an optimal fiscal low-to-no risk result.

As with any asset, the equipment, software and overall technology of submeters are evolving. Many companies find that submeters alone are merely step one toward the level of operational profitability they hope to achieve. Yet, it's impossible to decouple the equipment from variables that impact submeters' optimal performance. From a seamless billing and resident communications program, to a maintenance plan for the equipment, a narrow view reduces the operational profitability of the submeter investment.

Submeters are a mission critical component in a property's supply chain of revenue. It is best managed and controlled under a unified strategy. Such a submeter maintenance program is a partnership that extends the value of the equipment, but assures that a property owner is optimizing data, protecting the property's revenue stream and connecting with residents. It's also assurance that a property owner receives valuable information on the asset in time to make actionable and profitable decisions.

The traditional separation between business and operations has been to the detriment of profitability. The industrial Internet of Things (IoT) dissolves the distinction

Howard Behr is a Vice President, Product Management, Submeters at RealPage, Inc. He joined RealPage in early 2016 through the acquisition of NWP. Over the past 14 years, Howard has held a number of leadership roles including the management of business development, sales operations, implementations, submetering, and product management. In particular, he successfully oversaw the acquisition and incorporation of three direct competitors and the creation of a nationwide submetering division that quadrupled in size in its first four years.

between information technology and operating technology, allowing people and technology in these spheres to become increasingly connected. Within this interconnection, apartment operators have the opportunity to expand their view beyond real-time control of processes to real-time control of business performance.

The next big thing in profitability: asset control and LoRa

Asset control goes beyond process. An asset-centric approach aligns the control and measurement of profitability with all the assets of an apartment operation—from equipment all the way through to the physical unit and resident behavior. As owners and operators gain greater control over data and what it means to their bottom line, connectivity will continue to impact how it is accomplished. The game changer for this connectivity may be LoRa (Long Range Wide Area Network). If you haven't heard of a LoRa, you will.

LoRa is important because connectivity is core to an apartment owner's ability to access the data needed to control assets and measure profitability, such as with submeter maintenance. LoRa makes this connectivity possible. Until recently, wide area networks that were limited to cellular are now being expanded through sensor networks developed specially for the IoT. LoRa is long-range, low-battery usage technology that is becoming the worldwide standard for IoT communication.

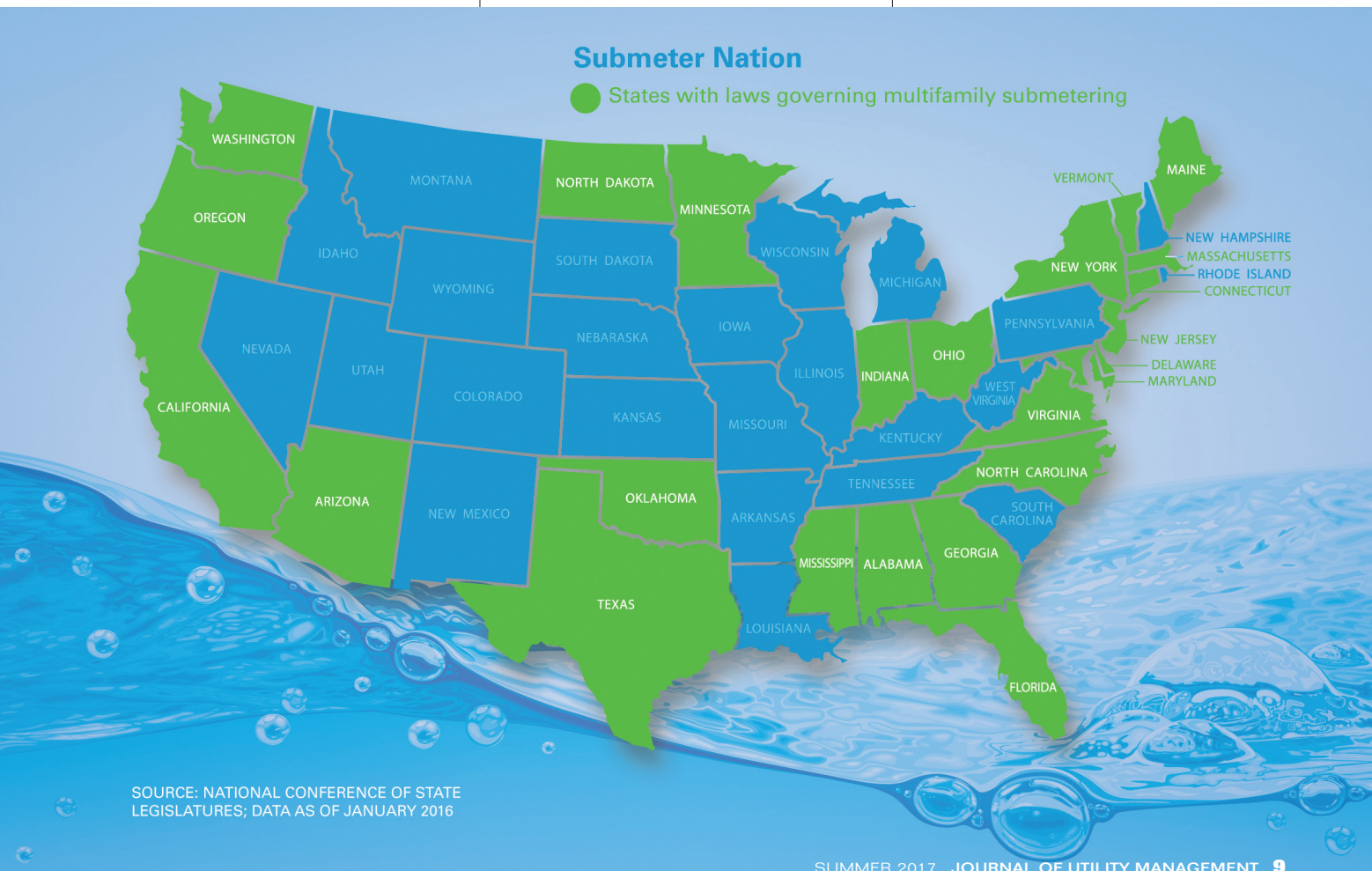
LoRa protocol communicates up to 30 miles and a 9-volt battery can power it up to 10 years. It is already changing how submeters transmit data and the ease with which such equipment can be installed. LoRa continues to lower the barrier to submetering, and places the focus squarely on asset control: how will owners best manage the profitability of their asset? The answer rests with a good submeter maintenance program and its related touch points.

Inefficiencies result as equipment degrades often wasting energy. Submeters are no exception. "A well-designed maintenance program on submeters easily pays for itself in a number of ways," said Howard Behr, RealPage. "Everyone knows it mitigates legal entanglement by keeping the equipment in top working order, but few realize the effect it has in ingratiating residents. They are receiving regular attention through the service, which creates a natural loyalty with the community."

Submeter maintenance programs fall under an operating expense rather than a capital expenditure, which are easier to budget, and related fees are typically recoverable by billing the resident. There are ancillary benefits as well. Behr oversees product management for RealPage's Utility Management division, which offers a leak detection product. The company can identify leaks through irregularities in usage and alert the property manager and maintenance staff.

Those properties that are on a regular maintenance program for their submeters may also be advised of issues that the technicians notice in the field, such as a leaky or aging water heater. "Field techs are perfectly positioned to spot root causes of leaks that will not show up on monitoring data," said Behr. "It's a value-add that protects an owner's profitability and makes residents feel appreciated and connected to the property. Techs get to know the submeter system, the property staff and the residents. They become a knowledge base and asset as well."

Revenue is the heart of any apartment operation. Maintaining submeters and controlling this asset is the most effective way to optimize profitability, control utility costs and garner resident satisfaction. In the world of property management, that's a profit trifecta.



SOURCE: NATIONAL CONFERENCE OF STATE LEGISLATURES; DATA AS OF JANUARY 2016

Utility billing risk assessment—scary or not?

Utility expense management for multifamily operators is about managing the balance between recovering resident utility costs and the regulatory requirements (including consumer protection provisions) that exist in different jurisdictions. Utility billing service providers endeavor to mitigate risk while maximizing recovery. Here are some of the considerations we face in today's legal and regulatory environments and how to best manage uncertainty with utility billing programs.

A vitally important first step, regardless of where the property is located, is getting utility billing lease disclosures correct. The lease is a contract between multifamily operators and residents. Proper lease language obligates residents to pay for utilities separate from rent. It discloses the billing methodologies in plain language, the sources of costs that may be included in resident bills, and any administrative fees. It also complies with state and local requirements regarding lease language.

Should a resident have questions about a bill, apartment operators should offer to review the lease, detailing their obligation to pay separately. This should also include methods and/or fees contained in the lease disclosure.

Multifamily operators should work with their landlord-tenant counsel to ensure that the lease language allows for modifications to billing methods and administrative fees, if allowed by law.

Affordable housing sector

The affordable housing sector presents additional, potentially "scary" scenarios for utility billing programs. Low income and tax credit properties (Low Income Housing Tax Credits or LIHTC) have numerous restrictions on rents, utility allowances, lease language requirements and reporting obligations.

However, the Internal Revenue Service granted LIHTC operators the ability to bill residents for submetered water and sewer service in 2010. The IRS promulgated a rule that can allow for submetered water and sewer to be treated as if the low-income resident were signing up with the water provider itself for service. Providers are encouraged to check with their counsel for more specifics on the rule and how this rule applies to their properties.

Get to know your utility

Once an operator has their billing programs in full swing, a good relationship with its utility billing service provider will ensure a high quality end product to its residents. The resident bills should be accurate and contain all required information. Residents should have access to all pieces of information that they need to determine whether their bills were calculated properly.

This information may include the property's utility bills, property tax statements or other sources of utility costs, rent roll information, such as the total number of occupants or total occupied square footage of the property, submeter read information, and any required submeter testing or certification information.

The multifamily operator has continuing obligations to provide utility bills, updated rent rolls and other pieces of information to ensure that the billing program works as intended. A great relationship with the service provider can ensure that bills are timely and accurate, which benefits the residents and operators and creates resident trust in the program.

Multifamily operators and their utility billing service providers must be cognizant of state and local laws, rules, regulations, and ordinances during set-up of their billing program and during the continued operation of the program.

Many jurisdictions require registration and/or reporting by multifamily operators. Some states have detailed rules around lease language, billing methodologies, restrictions on costs and fees, and dispute resolution mechanisms.

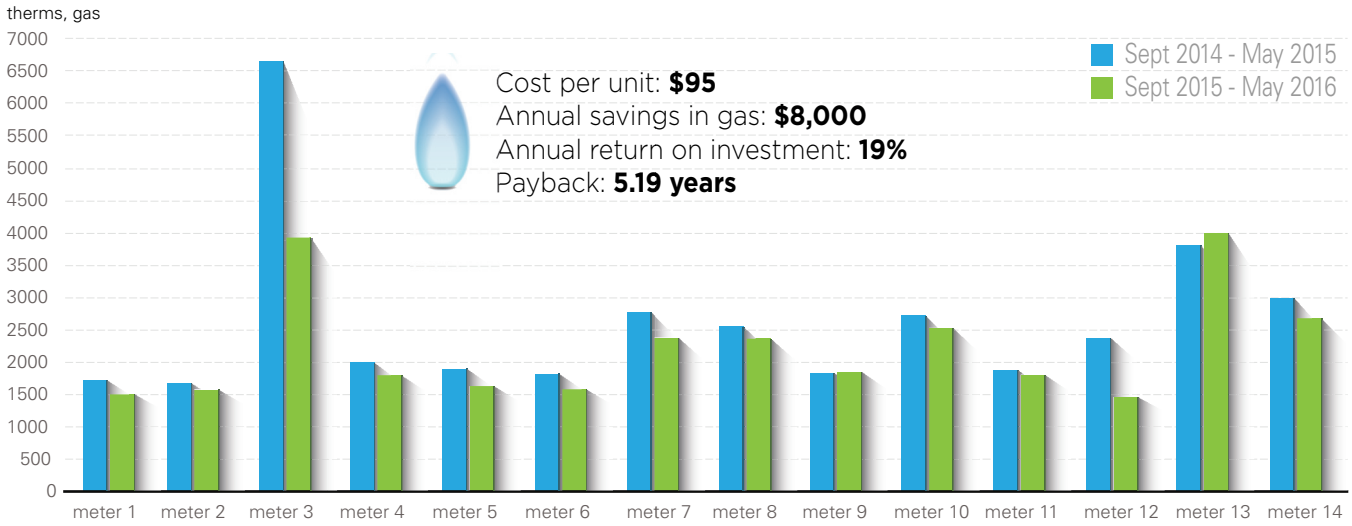
Other jurisdictions do not regulate these practices on the state level, but their local authorities do. Other jurisdictions regulate the utility providing the service.

The ever-moving business of utility billing

All of this highlights a dynamic regulatory landscape around utility billing. Multifamily operators that proceed in good faith to comply with regulations or best practices may receive lenience from regulators for good faith unintentional violations. The State of Texas, for example, has punitive penalties for noncompliance (three times any overcharge and one month's rent) but allows for a waiver of one month's rent portion of the penalty if the owner can prove the violation was a good faith unintentional error.

Managing a utility billing program does not have to be a frightening endeavor. A good working relationship between multifamily operators and billing service providers can go a long way toward smoothing out operational hiccups. Strong and detailed lease language is of paramount importance to ensure a robust billing program.

The lease language will be the operator's first line of defense if there are challenges to the billing program. Residents can and should refer to their lease language to determine whether they are being billed properly. These steps can turn potential uncertainty for operators and residents into a trusted and certain monthly process that obtains desired utility recovery results.



On-demand recirculation system: 433 units, 8 buildings
Located in Oakland, California, this property was built in 1991. It includes underground parking with concrete podium and 3 floors of units. It is wood stick frame construction with hot water boilers located in garage mechanical rooms. The owner added an on-demand controller that turned on the pump if the line was not hot and there was a call for hot water in the building. Buildings 3 and 13 are whole building data compared to the others that represent half of the building.

Energy efficiency = fiscal efficiency

Mary Nitschke, director of ancillary services for Prometheus Real Estate Group in San Mateo, California, is a regular case study presenter at the Energy Summit in Washington, D.C. each year. With 13,000 units and another 2,600 in the pipeline, her company is the largest privately owned developer in the San Francisco Bay Area. Being a good steward of the Golden State's resources is a corporate objective and one that Nitschke takes seriously.

Nitschke is also president of the Utility Management Advisory Board, and one of the nation's authorities on low and no cost energy efficiency enhancements in the multifamily space. No energy summit is complete without case study results from Prometheus' latest energy efficiency innovations, leaving attendees wondering how the company can possibly implement efficiency on a dime in an area where the cost of living is 62.6 percent higher than the U.S. average.

How does she do it? A look behind the curtain reveals Nitschke's team of energy wonks who regularly analyze retrofit costs, their payoffs and make recommendations to multifamily owners and developers. One important member of the Nitschke team is the nonprofit organization in Emeryville, California, the Association of Energy Affordability (AEA). The national group brings over 130 energy engineers, project managers, building scientists, trainers and technical consultants together with the focus of increasing energy efficiency in ways that pencil for owners, be it utility rebates, federal and state programs that pay in full or in part for certain upgrades and retrofits, as well as locate other funds and products earmarked for multifamily.

"We're always researching any and all rebates that might eliminate or reduce the pain of up-front or total cost," said Rachel Kuykendall, senior project manager with, AEA and speaker at the recent Energy Summit. Kuykendall focuses on finding that rarified air of no and low cost retrofits that net rapid and notable ROI on multifamily housing properties.

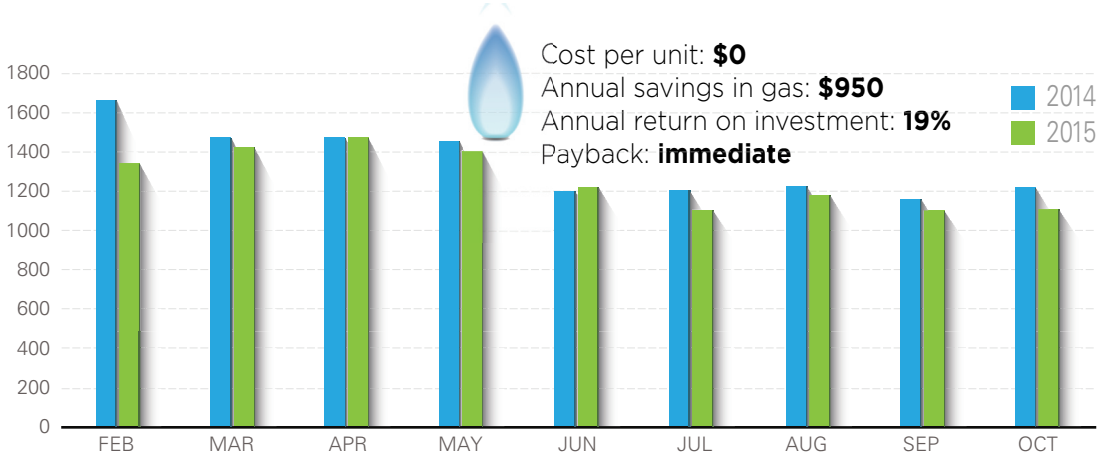
"Low and no-cost retrofits are a really good way for a property owner or manager to dip their toe into the water of energy efficiency in a very sellable way," Kuykendall said. "Often they are the things that—even without a rebate program—can save operational costs and bring a discernible return to apartment owners."

Finding the fiscal will

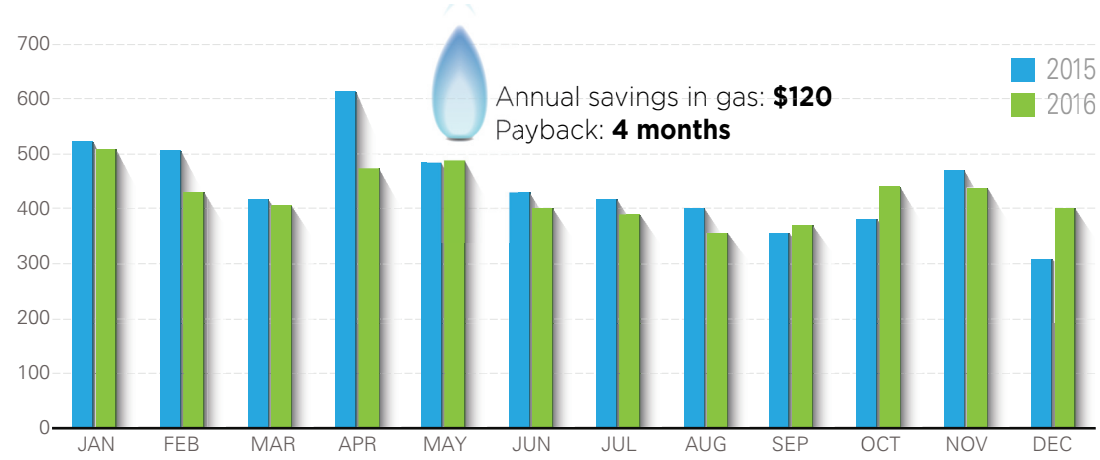
Rebates, incentives and utility discounts are offered in nearly every state (see the Department of Energy's list of programs at energy.gov). Many utility companies also offer programs. The deals are out there, so it's about finding and matching those resources that are most beneficial to a specific property's fit and finish, location, climate and more.

Kuykendall's organization scouts deals for apartment owners and developers, but also trains companies to match the best program to their specific properties. "We holistically work with owners, within their budgets, to create energy efficiency programs," she said. Kuykendall's company includes energy engineers, building scientists and technical consultants that also help inform public policy and building standards in many jurisdictions across the nation.

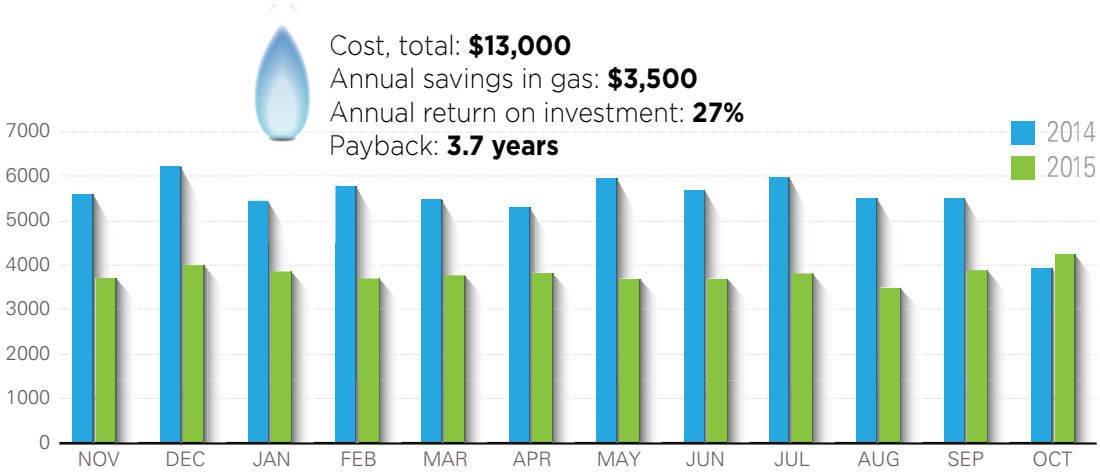
The proof is in the savings and for multifamily operators it's all about return on investment and conservation. Here are just a few of the results of Kuykendall's multifamily projects.



Low flow shower heads and aerators: 53 units, 6 buildings
Located in Hayward, California, this property was built in 1949, and is ground floor slab-on-grade with 2 floors of units. It is wood stick frame construction. Low-flow bath faucet aerators, kitchen faucet aerators and shower-heads were added to all units. All retrofit materials were at no charge through a local rebate program.



Pipe insulation: 220 units, 16 buildings
Located in Belmont, California, this property was built in 1962, and is wood stick frame construction over a crawl space.



Garage lighting—T-12 fluorescent running 24/7 to bi-level LEDs: 245 units, 5 buildings, 4-story
Located in San Jose, California, this property was built in 2006, and is wood frame with underground parking.

Green financing grows in 2017

Lower interest rates and larger loans are fueling energy conservation inside multifamily housing operations across the country, bolstering the bottom line of owners and the wallets of residents.

Fannie Mae, Freddie Mac, HUD and the Federal Housing Authority (FHA) offer multiple loan discounts that recognize apartment properties that use less energy. Apartment buildings with energy-saving features typically have lower utility bills that can make them more profitable and less risky for lenders. GSEs (government sponsored enterprises) recognize the potential savings in their underwriting calculations, discounted interest rates and loan to value ratios in the products they offer.

Fannie Mae was the first to launch its Green MBS product in 2012, a loan category that has widened greatly in the last year as HUD, Fannie Mae and Freddie Mac bolstered or launched fiscal incentives for conservation in 2016. Fannie and Freddie funded well over $3.5 billion in green loans last year, a number expected to be exceeded in 2017 as the trek toward sustainability continues in an energized apartment market. These loans support properties that will save 20 percent or more on their annual energy or water consumption by upgrading to energy- or water-efficient equipment, as well as properties that have been awarded a third-party green building certification, such as ENERGY STAR or LEED.

Apartment communities that are LEED certified tend to be new construction or extensive rehabs since insulation is a big contributor to meeting its high-efficiency standards. Fannie Mae's Green Rewards program is a huge part of making these new construction loans possible.

Green financing also helps owners obtain low-cost loans to make existing properties more energy-efficient. Fannie covers up to 50 percent of the projected value of the energy-saving improvements planned by the borrowers and lends up to 5 percent more than a typical loan. This allows owners of older affordable housing properties to get green financing without going through a full gut rehab that's required of older buildings to meet standards like LEED.

Fannie Mae, Freddie Mac and HUD provide over half of the multifamily housing loans across the country, giving the GSEs significant influence over the lending market as green lending competes with conventional loan products.

GSE programs continue to place green financing discounts in reach of just about any borrower seeking funds for a multifamily property, with simple, low-barrier requirements in the way of conservation. Fannie and Freddie allow basis point reductions on loans for multifamily properties that meet one of three criteria:

- **Having a standing green certification**
- **Committing to pursue green certification**
- **Committing to reduce energy and/or water consumption**

Those opting to simply reduce consumption and not pursue certification are verified by an energy audit. Such an audit sets a roadmap for achieving certain cost-effective goals for effectiveness.

With the constant market fluctuation of utility supply and cost, the heightened focus on socially responsible conservation and tightening rents already occurring in many metros, reducing energy consumption is becoming a standard of good business. Green financing supercharges operational savings by offering reimbursements, lower interest rates and additional loan proceeds at a lower upfront cost.

What incentives do GSEs offer?

10-40 basis point reduction. Lending rate discounts are available in return for meeting sustainability and/or energy efficiency targets, which can provide a substantial impact to the Internal Rate of Return.

No caps. Green lending programs are not subject to the annual Federal Housing Finance Agency lending cap, making them attractive to agency sellers and servicers who can now do a lot more deals.

Audits are covered. Depending on the program, the cost of the energy audit is covered in part, or in full, by the agencies.

Reference: energy.gov

Mandatory Benchmarking

Multifamily energy disclosure requirements

TOWN	LAW / ACTION	BLDG SIZE	DEADLINE
Austin	**Energy Conservation Audit & Disclosure (ECAD)** — 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)	N/A
Atlanta	**Commercial Buildings Energy Efficiency Ordinance** — Multifamily owners must report their usage for energy. Energy audit required every 10 years.	≥ 25,000 sq. ft.	June 1
Berkeley, Calif.	**Berkeley Energy Saving Ordinance (BESO)** — Multifamily owners must report their usage for energy and water. All buildings > 4 units must complete energy assessment.	≥ 50,000 sq. ft. (eventually phasing in all buildings > 4 units by 2020)	October 1
Boston	**Building Energy Reporting and Disclosure** — 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.)	> 35,000 sq. ft. or 35 units	May 15
California (statewide)	**California's Assembly Bill 802 of 2015** — Details TBD. California Energy Commission has been directed by legislature to adopt regulations providing for public transparency of benchmarking energy use data for commercial and multifamily buildings.	≥ 50,000 sq. ft. (by anticipated initial deadline of 4/1/19 for multifamily)	April 1 (anticipated)
Cambridge, Mass.	**Building Energy Use Disclosure Ordinance** — 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	June 1
Chicago	**Chicago Energy Use Benchmarking** — 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.	≥ 50,000 sq. ft.	June 1
DC	**Clean and Affordable Energy Act** — 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.	April 1
Kansas City, Mo.	**Energy Empowerment Ordinance** — Owner must report whole building data for energy and water.	≥ 100,000 sq. ft. (≥ 50,000 sq. ft. by 5/1/2018)	May 1
NYC	**Local Law 84** — 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	May 15
Philadelphia	**Building Energy Benchmarking Ordinance** — Owner must report whole building data for energy and water.	≥ 50,000 sq. ft.	June 30
Seattle	**Building Energy Benchmarking and Reporting Program** — 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. (Seattle's 2016 building energy law that requires "building tune-ups" every 5 years does not appear to impact multifamily buildings, but only commercial buildings.)	5+ units	April 1

Some jurisdictions have passed energy disclosure laws that currently do not apply to multifamily: Minneapolis, Minn.; Portland, Ore; San Francisco, Calif; Montgomery County, Md.; Boulder, Colo; and the state of Washington. Areas expected to add similar legislation include Columbus, Ohio; Denver, Colo.; Houston, Texas; Orlando, Fla.; Salt Lake City, Utah. This chart is merely an overview and not intended to be a substitute for legal advice. Additional details such as who to disclose to, penalties for noncompliance and links to government websites are available at realpage.com/utility-benchmark/

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Brandon Winter

Project Manager

Equity Residential

Chicago, IL

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