

This presentation premiered at WaterSmart Innovations

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T-1821

10:20 am - 10:50 am

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Updates on Regulations/Best
Practices for Wireless and
Cloud-based Submetering

Presenter: Don Millstein, President
H2O Degree



What Utility Cost Allocation/Submetering?

- Metering of water consumption “Sub” of the utility water meter
- Building has one Master Meter from the utility, how does it allocate the water bill?
 - Just include water in as part of rent
 - Allocate water bill based on some estimate (sq. footage, units, bedrooms, etc)
 - Rubs – Ratio Utility Billing System
- Install individual meters to bill tenants for their actual usage
 - Equitable way to bill tenants
 - Creates an incentive for conservation
 - Provides property owner with ability to recover cost



Utility Master Meter



Utility Apartment Meter



Point of Use Water Meter

Utility Cost Allocation Program for Master Metered Buildings

The Old Model



Submeter

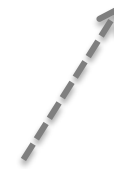


- Increased NOI and/or offer more competitive rates
- Simplified budgeting
- Less consumption / greener properties

RUBS Program



In-house or
via 3rd party billing provider



Water Utility



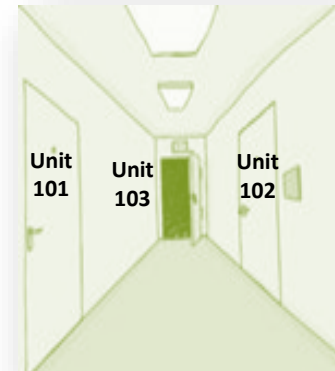
Utility Master
Meter



Distribute statements
to residents



Collect payment



Goal of water submetering & leak detection

- Achieve maximum water efficiency
- Create tenant behavioral change
- Drive owner/maintenance behavioral change
- Reduce operating expenses
- Increase the facilities Net Operating Income
- Improve the property valuation



Submetering Studies have proven energy savings and conservation



18 - 39% Savings



10% Savings



NYSERDA

10 - 26% Savings



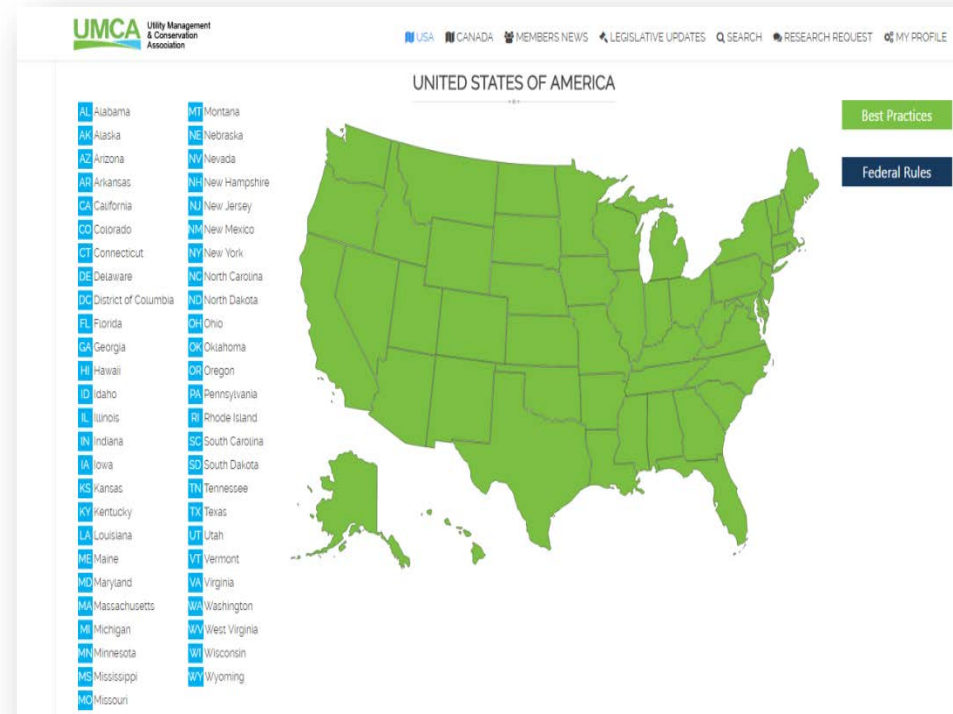
Understand Local Submetering Rules and Regulations

- No federal laws; all by state and local entities
- Common regulatory bodies
 - *Municipalities: Ordinances related to water or other utilities*
 - *State weights and measures laws (mainly in reference to submeters)*
 - *Public Utility Commissions (PUCs)*
 - *Utilities (utility rules are called tariffs)*
 - *State real estate departments (landlord and tenant laws)*
- Overall Guiding Principle – Landlord can not make a profit from submetering



Who is the UMCA?

- Not-for-Profit industry association that promotes conservation and takes responsibility for defining best practices
- How we help property managers and billing companies:
 - Comprehensive regulatory database
 - Vendor / resource directory
 - Answer questions / help property managers implement good programs



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Sample from UMCA Database

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RESEARCH DATABASE

Login

 Utility Management & Conservation Association

 USA  CANADA

Virginia



Overview	State	County	Local	Agencies	Contacts	Utility Provider
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Electricity

↓

Gas

↓

Trash

↓

Water/Waste Water

→

Manufactured Housing

↓

RATIO UTILITY BILLING SYSTEM (RUBS)

Last updated : 03/06/2017

Utility:

Water/Waste Water

Tenant Billing:

Allowed

Regulation(s):

Code of Virginia, Title 55, Chapter 13, Section 55-226.2. (C):

C. If a ratio utility billing system is used in any building, manufactured home park, or campground, in lieu of increasing the rent, the owner, manager, or operator of the building, manufactured home park, or campground may employ such a program that utilizes a mathematical formula for allocating, among the tenants in a building, manufactured home park, or campground, the actual or anticipated water, sewer, electrical, or natural gas billings billed to the building or campground owner from a third-party provider of the utility service...

Fees:

Allowed

Regulation(s):

Owner/Management companies must clearly disclose this program in the lease. Best practices indicate that full disclose should include methodology and the fees. Move in, move out and billing fees are all allowed. Late fees may not exceed \$5.00. Fees must be stated and agreed to in the leasing agreement or accompanying documents.

Code of Virginia, Title 55, Chapter 13, Section 55-226.2. (C):

C. ...The owner, manager, or operator of the building, manufactured home park, or campground may charge and collect from the tenant additional service charges, including but not limited to monthly billing fees, account set-up fees, or account move-out fees, to cover the actual costs of administrative expenses and billings charged to the building, manufactured home park, or campground owner, manager, or operator by a third-party provider of such services, provided that such charges are agreed to by the building, manufactured home park, or campground owner and the tenant in the rental agreement or lease. The building, manufactured home park, or campground owner may require the tenant to pay a late charge of up to \$5 if the tenant fails to make payment when due, which shall not be less than 15 days following the date of mailing or delivery of the bill sent pursuant to

California Senate Bill 7

- Signed by the Governor 9/25/16
- SB 7 – Chapter 623 Requires submetering in all new construction Multi-Family Dwellings after 1/1/2018
 - Bill based on actual volumetric usage
 - Goal is to hold tenants accountable & encourage conservation while providing consumer protection



California SB7 Chapter 623 Highlights

- **Sec. 1954.203 – Hardware Requirements**
 - Comply with all California laws including CA plumbing code & Business & Profession Code
- **Sec. 1954.205 - Billing Fees**
 - Billing and administrative fees at the lesser of \$4.75 or 25% of the amount billed
- **Sec. 1954.210 - Leaks**
 - Leaks must be repaired within 21 days of notification from tenants or landlord becomes aware based on usage or reports.
 - After 21 days and no repair, billing limited to lesser of \$15 or actual usage
 - After 180 days without repair, no charges can be charged until fixed

California SB7 Chapter 623 Highlights

- **Sec. 1954.216 – Ratio Utility Billing Systems**
 - “(c) Nothing in this chapter shall be construed to apply or create a public policy or requirement that favors or disfavors the use of a ratio utility billing system.”
- **Sec. 1954.219 – Exemptions**
 - Long-term health care facilities
 - Low-Income Housing
 - Residential care facilities for the elderly
 - Housing at a place of education
 - Time share properties

California SB7 Chapter 623 Highlights

- **Amendment to Chapter 8 of Division 1 Water Code**
- Sec. 537.1 – Installation by one of the following:
 - Contractor licensed by the State employing at least 1 journey person who graduated from CA State approved apprentice program
 - Registered Service Agency approved by CDFA
- Sec. 537.2 – Permits can not be denied if:
 - Submeter manufacturer delay
 - County sealer delay
 - Meters must be installed within 120 days after sealing

New Jersey Submetering Update

1. Submetering allowed for new construction for electric & water
2. New Jersey Board of Public Utilities does not allow for retrofits
 1. NJ Apartment Association (NJAA) is working to seek authorization for retrofits
 2. NJAA decided to go for regulatory change rather than legislation
 3. Hoping to file Petition within the Christie Administration. NJAA goal is to file in 2017
 4. UMCA has supported the NJAA with white papers, case studies & datasets
3. Rubs Legislation case - Crossman v Resource MS Stonybrook
 1. NJAA & NAA participating as amicus curiae (friend of the court)
 2. UMCA members also supporting the case
 3. Appears legality of RUBS is being upheld
4. Lobbying Efforts
 1. UMCA has been approached by a lobbying firm but will hold off as process continues. Support of NJAA, NAA and UMCA members is the current path



Ohio

Submetering Update

Cause: RBCs operating outside of industry standard practices.

***The Dispatch* Articles and Legislature Attention**

PUCO and Energy Utilities Involved

Local Ordinances

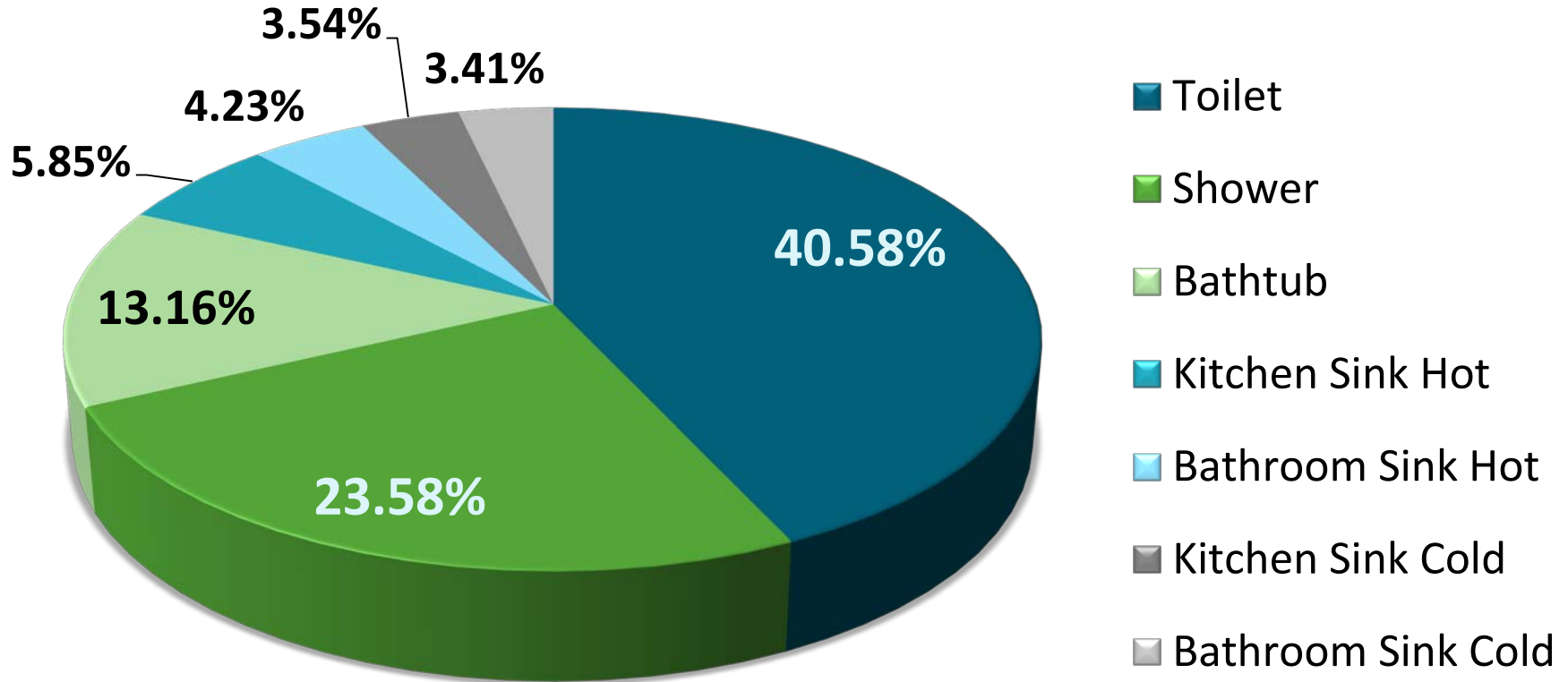
**Senate Bill 157 in Committee with
testimony 6-22-17**

**Allows Submetering, Protects RUBS
Allows Fees, Gives PUCO Oversight
Requires Complaint before Court Action**



Every DROP Counts

Typical One Bedroom Point of Use Consumption



Average Daily Consumption (ADC)

How to calculate ADC

Step 1: Divide Water Bill by the number of Days in the Billing Cycle

Step 2: Divide answer by the number of Apartment Units

Step 3: Compare to the national average for 1 Bedroom of 70 Gallons per day



Analytics based on Comparison

- Under 70 Gallons ADC
 - Efficient Tenant
 - Elderly Tenant
- Over 130 Gallons ADC
 - Leaky toilets, showers, sinks
 - Wasteful tenants
- Over 200 Gallons ADC
 - Abusive waste of water
 - Extensive Leaky appliance
 - Underground leaks
 - Pin Hole Leaks in the walls
 - Over occupancy

Target ADC 70 Gallons for One Bedroom



Type of Submetering System	Number of Meters per Apartment Unit	Type of Plumbing Design
Single Point of Entry	1	Single cold water branch feeds each apartment. Typically, it enters the apartment at one point in the utility closet and supplies the heater and continues on to supply cold water for the fixtures. Meter installed right before plumbing branches and after isolation valve.
Dual Point of Entry	2	Building produces central domestic hot water. Both hot and cold water typically enter the apartment at one centralized location in a hallway access panel or washer closet. Meter installed right before plumbing branches and after isolation valve.
Point of Use	3 (Average)	Individual hot and cold risers feed the toilets, hot shower, cold water for shower, kitchen, sink, etc. Meters are installed at each fixture supply valve to capture water consumption.

Traditional Point of Entry Meters with Pulse Output



Master Meter
Cold Only
1 Pulse per Gallon



Norgas
Cold & Hot
1 Pulse per 10 Gallons



Neptune
Cold & Hot
 $\frac{3}{4}$, 1, 1 $\frac{1}{2}$, 2 inch
1 Pulse per 10 Gallons



Wireless
2 Channel Pulse Counter

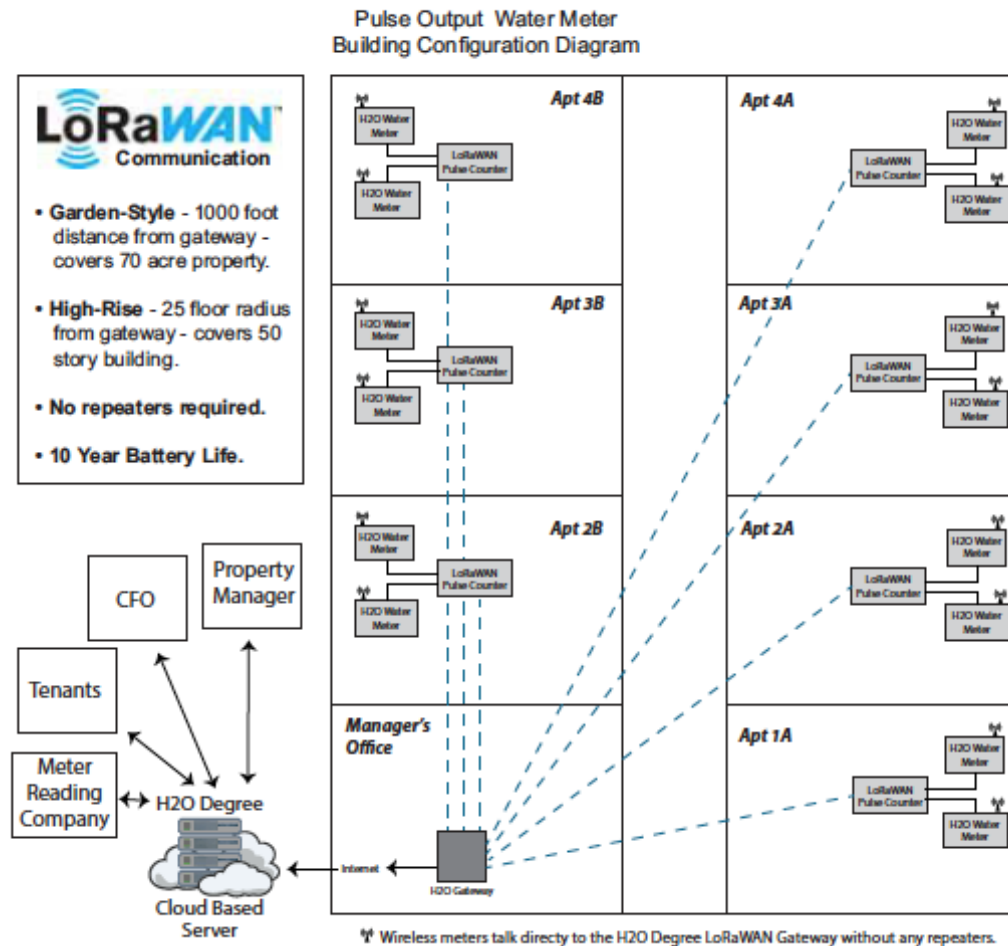
Pulse Output Meters can be challenging to get granular leak detection

Point of Use Submetering

- Apartments where plumbing is a Riser Pipe configuration
 - One water pipe runs either up the building or through the ceiling tapping off to multiple points
 - Toilet
 - Shower/Tub
 - Bathroom Sink
 - Kitchen Sink
 - Washing Machine
- To gather total water consumption, must meter each "Point of Use"
 - Toilets get you 40%, Shower & Tub 40%
 - In some cases, the customer may allocate the remainder of water rather than meter

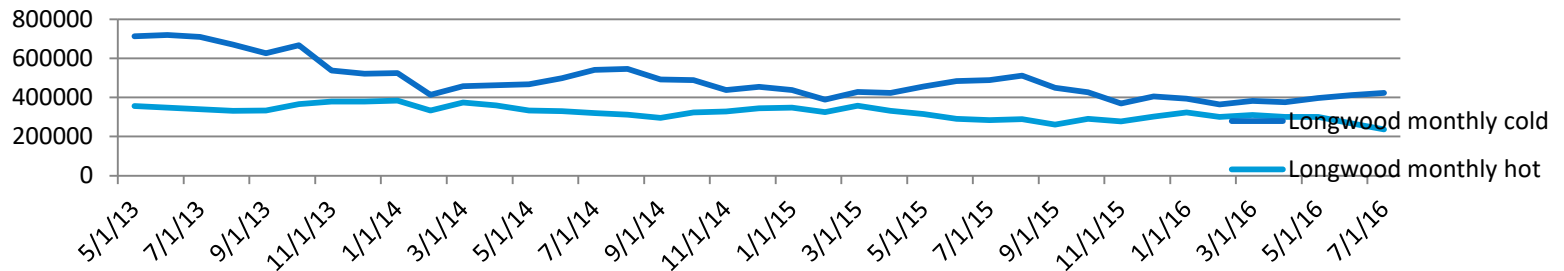


Latest in Wireless Submetering Solution



Daily Leak Detection Reports

- Daily leak detection reports
- E-mailed to various stakeholders
 - Property Manager
 - Maintenance
 - CFO
- Web-portal view
- Highlights issues and if they have been rectified



Average Daily Toilet Events

- 10 Events, normal day
- 20 Events, bad burrito the night before
- 100 Events with little usage each time, broken flapper valve
- 2 events with constant water flow, broken flow valve



Instantaneous Leak Report



- Instantaneous Leak Reports
- Sent via E-Mail (Text in future)
- High Gallon Report
 - Criteria – More than X gallons per hour for N hours
 - Report available with both H2O Degree's M54120 meter and any pulse output water meters connected to H2O Degree Pulse Counter
- Constant Flow Report
 - Criteria – 60 Minutes of flow in an hour. This report is available only with the H2O Degree M54120 meter for both point of entry and point of use

Cheverly Crossing, Hyattsville, MD

- **60 Units, Garden Style retrofit**

- Developer – Novo Properties
- Water, Electric & Thermostats
- 238 Wireless Water meters – Point of Use
 - Meter toilet, shower, sink, etc.
 - Submetering for tenant billing
 - Daily leak detection reports sent to property
- Average Daily Consumption (ADC) reduced from 200 gallons to 80 gallons the first year.



- **56% Utility Savings – 1.2 Year Payback**

360 State Street – New Haven, Ct

- **500 Units, 32 Story – New Construction**

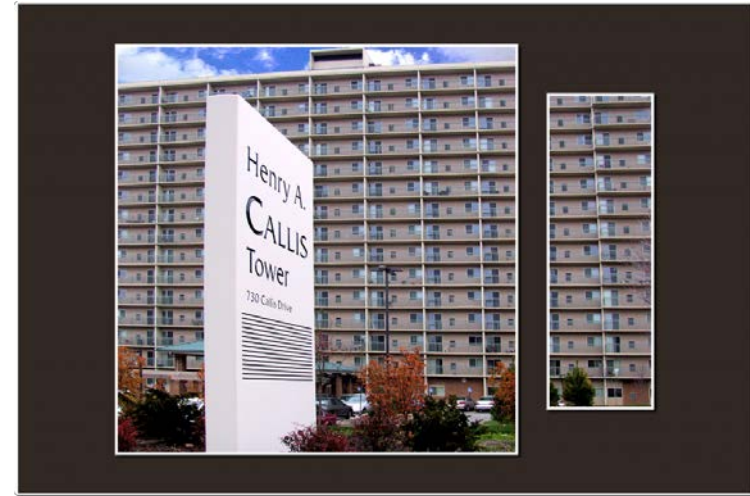
- Developer – Becker & Becker
- Water, Electric & Thermostats
- Platinum LEED Building
- Mainly Yale Graduate Students
- 1,000 Wireless Water meters - dual point of entry
 - One hot and one cold water meter
 - Submetering for tenant billing
 - Daily leak detection reports sent to property
- Average Daily Consumption (ADC) 45 – 55 Gallons per unit, compared to industry average 70 Gallons



- **Saved 2.9 Million Gallons per year**

Callis Tower, Akron, OH

- **280 Unit Senior Housing**
- Developer – Alpha Phi Alpha
- LIHTC - Low Income Housing Tax Credit
- Water leak detection
- 560 Wireless Water meters - dual point of entry
 - One hot and one cold water meter
 - Submetering for tenant billing
 - Daily leak detection reports sent to property
- Saved over 15% or \$23,000 the first year
- ROI 45% with a Payback of 2.2 Years



460 16th – San Diego, CA

- **359 Units – New Construction**
- installed for tenant billing of water
- Developer - Lennar Multifamily Communities
- 718 Wireless Water meters - dual point of entry
 - one hot and one cold water meter
 - Submetering for tenant billing
 - Daily leak detection reports sent to property
- California Senate Bill 7 requires all new Multi-family properties to be submetered starting 1/1/18



New California law requires all new construction to be submetered



The Atlantic – Atlanta, GA

- **403 Units – Mix-use Condos & Apartments**
- Mgt. Company – Condominium Concepts
- H2O Degree Thermostat control system for billing run-time for central HVAC plant to each unit
 - Tenants have access to mobile app and web portal to control thermostats
- Water Submetering system installed for tenant billing of water



University Terrace – Blacksburg, VA

- **132 Units – Condos**
- **Installed 9/2014**
- H2O Degree Water Submetering system installed for tenant billing of water
- HOA – President



Wireless Water Meter





Thank you for your time

Don Millstein – President

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