Metering: how it helps water and energy conservation

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Smart Water Meters

• AMI: Advanced Metering infrastructure
  • Two way communication
  • Automated reading
  • Hourly or better usage resolution
• Conservation Benefits ~7%
  • Customer Leak detection
  • Conservation monitoring
  • Drought compliance
Smart Water Meter

- Private radio network: Utility builds own network
- Wide area network, e.g. on top of electric utility smart meter
- Cellular network

Few standards on “smart”
Meter only part of solution

• Smart meter tells customer he has a leak, not where
• Larger leak problem is on the utility side of meter ~15%

Opportunities
• IoT based leak detection for utility
• Virtual metering for losses between utility/customer

Leak detection the old fashioned way
AWWA

Source: AWWA, CA DWR
Why Water Sub metering?

• Tenant billing

• Building management
  • Conservation driven, e.g. LEED
  • Best practice building management

• On site recycling
  • Conservation codes
  • Rebates
  • Billing
Tenant billing: Multifamily Residential

Long desired MF sub-metering:
- Provides incentives and metrics
- Reduces MF consumption 15-25%
- Retrofit labor cost high

Game changer:
- Sub-meters in CA MF next year
- Rebates for sub-metering (SCVWD)

Tenants rights: Proper billing, notice, cutoffs, late fees, calibration, fees

Opportunities:
• Easy install smart sub-meters
• Water monitoring software
• Tenant billing software
Building LEED Certification

• Bronze, Silver, Gold, Platinum
• Sub-metering necessary to achieve maximum points
• Special Water rules for
  • Retrofit Buildings
  • New Buildings
  • Outdoor
  • Hospitality
  • Hospital
  • Others

Source: USGBC, APT
Building management

Indoor Water leaks #1 insurance claim!
• Damage, loss of use, mold

Best practices:
• Leak detection near fixtures
• Tenant sub-meters
• Critical system sub-meters, e.g. sprinklers
• Remote management system: smart sub-meters, shutoff valves, integration with BMS
• Payback with one sensed leak

Opportunities:
• Low cost smart sub-meters
• Easy install sub-meters, e.g. no pipe cutting
• Cloud based management
• Tenant billing software
On-Site Reuse: SF example

On site reuse requirements:
• SF new large buildings
• Other cities: large campuses

Sub metering needed:
• LEED measurement
• Measured rebates
• Bragging rights

Opportunities
• Reuse technologies
• Sale/purchase
• Retrofit
On Site Recycling: Water Purchase Agreement

Core Economics:
- No upfront cost for the customer
- 20 Year contract with escalators
- Water sold at lower cost than utility

Added Benefits:
- Energy savings
- Additional LEED points possible
- Avoid sewer surcharges

SAVINGS

- Utility Bills
  - Water
  - Sewer
  - Energy

- WPA Payment

Before WaterCity  After WaterCity
On site recycling: laundry water

Sub-meters essential to business:
- All treated water
- Make up water
- LEED compliance
- Rebates

Challenges
- Power loss on meter but not pump
- Meter clogs
- By pass loops in the water
- Accuracy differences vs. utility meter
Thank you!

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