

This presentation premiered at WaterSmart Innovations

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Myths, Fictions, Legends, and Other Tall Tales in the Field of Water Efficiency

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watersmart08
INNOVATIONS

Las Vegas, October 2008



Our goal -

- ✓ Real water/energy savings
that are sustained
and result in a
satisfied customer



Questions we ask -

- Are “water-efficient” products *really* water-efficient?
- Do “water-efficient” products yield long-term savings?
- Do “water-efficient” products meet customer expectations?



The goal....

- Real water savings

that are sustained

and result in a

satisfied customer



Water-efficient....*really*?

- Who says?
- Qualified and/or accredited laboratories?
 - ✓ Valid testing protocol?
 - ✓ Independently developed?
 - ✓ Represents “real world” conditions?
- Field testing & evaluation....verification?



Water-efficient....*really?*

- Look for:
 - ✓ Independent field and lab studies
 - ✓ Customer surveys
 - ✓ Authoritative data from independent sources
 - Water utilities
 - Other independent evaluators
 - Water efficiency professionals



The goal....

- Real water savings

that are sustained

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Sustained savings?

- Product maintenance reqm'ts
- Physical longevity
- Economic benefits > costs
- Savings decay
 - ✓ Behavioral changes?
 - ✓ Deferred maintenance?
 - ✓ Declining customer satisfaction?



The goal....

- Real water savings
that are sustained

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Customer Satisfaction?

- Dissatisfied customers & end-users will-
 - ✓ Tamper with the product
 - ✓ Throw product away or return for refund
 - ✓ Replace the product with an inefficient one
 - ✓ Tell everyone that “water-efficient” products are no good!



Products & Practices: Prevailing “Myths”



“Greenwashing”

- *verb*: the act of misleading consumers and others regarding the environmental benefits of a product or service
- “Six Sins of Greenwashing”TM
(by TerraChoice Environmental Marketing, Inc., Ottawa, Ontario)



Six Sins of Greenwashing™

- #1 - Sin of the Hidden Trade-off
- #2 - Sin of No Proof
- #3 - Sin of Vagueness
- #4 - Sin of Irrelevance
- #5 - Sin of Fibbing
- #6 - Sin of Lesser of Two Evils



Six Sins of Greenwashing™

- #1 - Sin of the Hidden Trade-off
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#1 - Hidden trade-off

- Suggesting a product or service is “green” based upon a single attribute
- Some examples (energy or water effic):
 - Tankless water heaters
 - Commercial ice machines
- Some other examples:
 - Non-water vs. flushing urinals
 - Recycled content of paper



#2 - No proof!

- An environmental claim that cannot be substantiated by easily accessible supporting information, or by a reliable third party (independent) certification
- Some examples:
 - Sensor-activated valves for faucets, toilets, and urinals
 - Some Energy Star labeled products



Consumer Reports Magazine

- “Energy Star has lost some luster”
October issue, page 24
 - “The DOE does not test products for compliance with its standards; manufacturers do it. And there’s no independent verification of what they report. Rather, the government relies on manufacturers to test their competitors’ appliances and notify it of suspicious energy use claims.”



#5 - Fibbing

- Making environmental claims that are simply false (usually representing that a product is “certified” by an independent agency or organization)
- Examples:
 - LEED-certified products
 - Energy Star-certified products



“Myths” of Water Conservation

- Questions:
 - Why do “myths” occur?
 - It’s not what it seems! Why????



“Myths” of Water Conservation

- Some answers....
 - ✓ No independent field or lab analysis
 - ✓ Reliance upon “engineered” estimates
 - ✓ Invalid test results & studies
 - Unscientific
 - Non-representative products
 - Lacking statistical validity
 - ✓ Failure to complete a Life Cycle Analysis (incl \$)
 - ✓ Glamorizing only the “successes”
 - ✓ Being “romanced” by the salesman



Some prevailing “myths”...

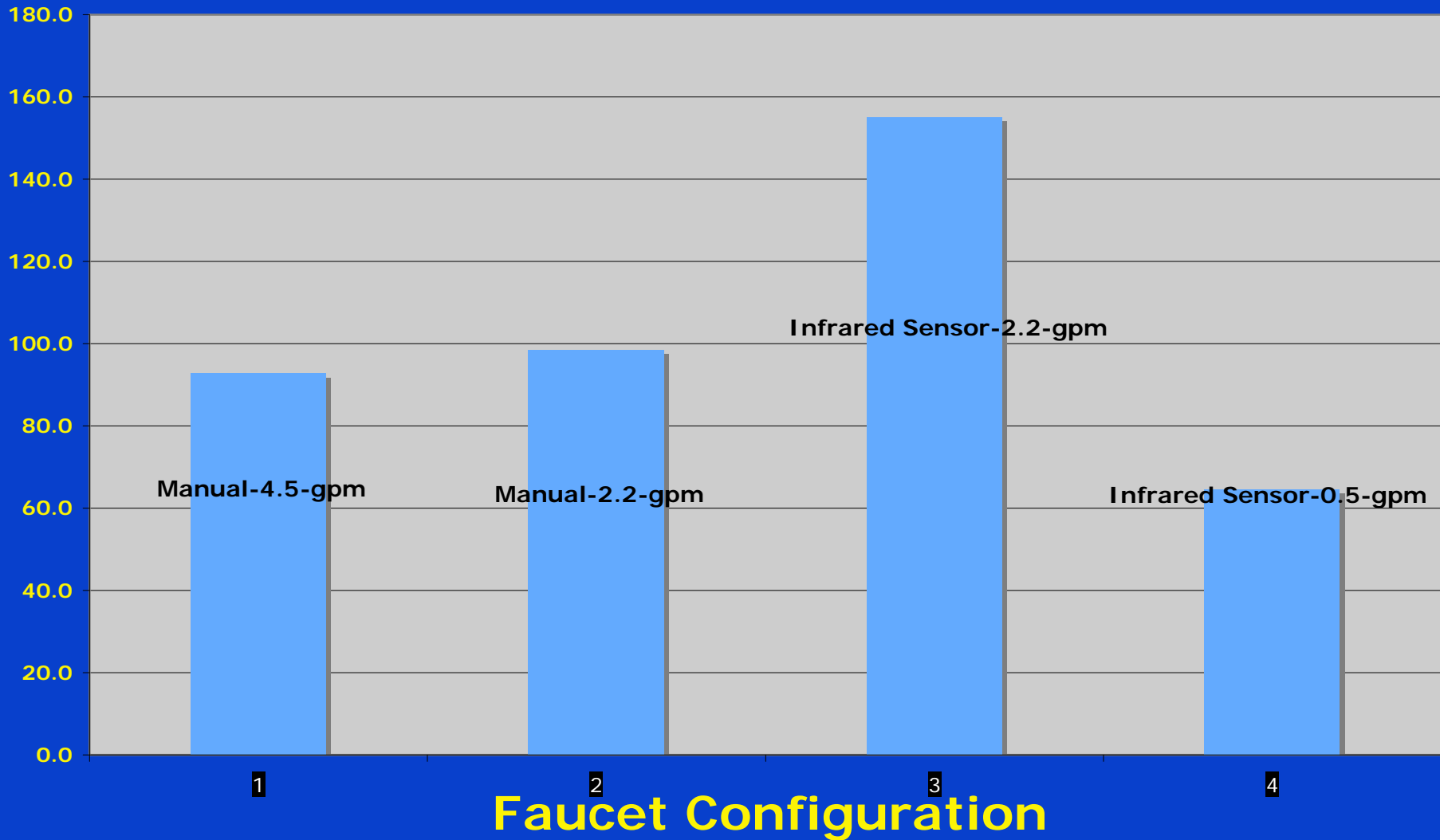
- Sensors on faucets & flush valves save water
- Water-cooled ice machines use less energy than air-cooled machines
- Tankless water heaters reduce water use when compared to storage-type water heaters
- Low-flow toilets don't work
- Double-flushing low-flow toilets negates the water savings
- Alternate-day lawn watering saves water



Myth: “Sensors on Faucets Save Water” (residential and commercial)

- ✓ Three studies say otherwise...sensor vs. manual
 - ASHRAE, 2002 (study of 106 to 120 days use):
 - Volume increased 58% when manual faucets replaced with sensor-activated faucets (infrared)
 - Millenium Dome, 2002 (1 yr study of 361 washbasin-faucets)
 - Volume (per visit) with sensor-activated (infrared) was twice that of manual faucets
 - EBMUD, 2006-07
 - Study compares sensor-activated with manual faucets
 - Preliminary findings show 40%+ more water consumed with sensor-activated installations

ASHRAE Study



Source: Fanney, Dougherty, & Richardson, 2002. "Field Test of a Photovoltaic Water Heater", ASHRAE

SourceSource: Hills, Birk, & McKenzie, 2002. "Millenium Dome 'WaterCycle' experiment: to evaluate water efficiency and customer perception at a recycling scheme for 6 milion visitors", Water Source and Technology

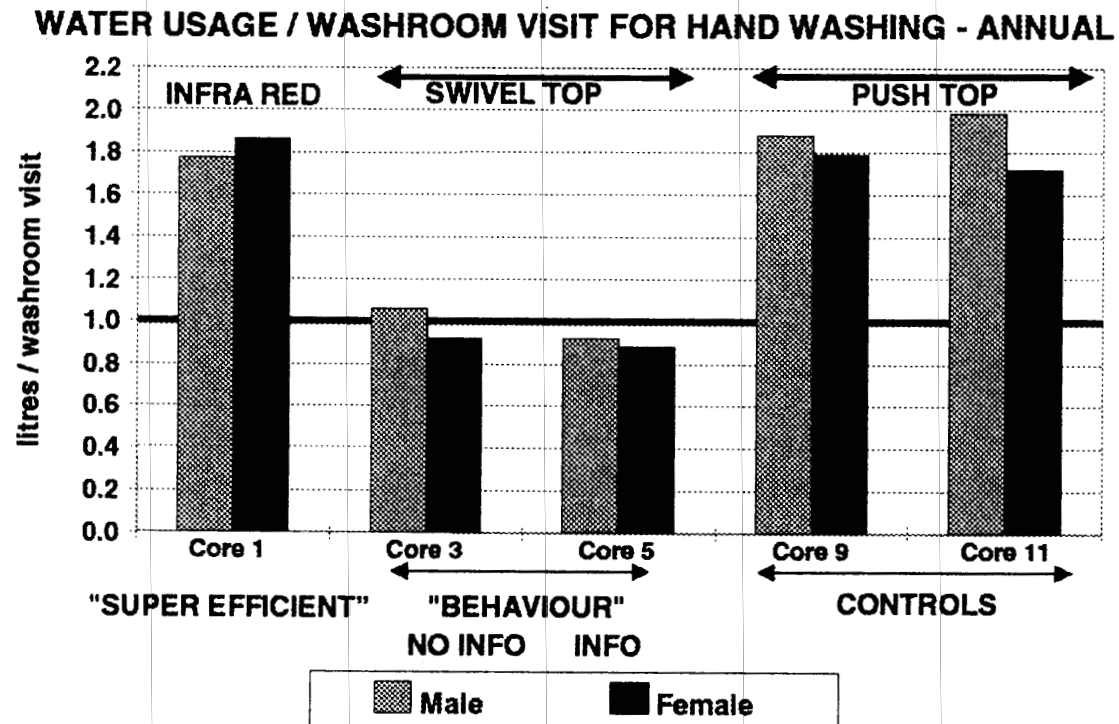


Figure 6. Mean volume of potable water used for hand washing by males and females (litres per washroom visit)

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- Aerators save water.....
.....NOT sensors!!



Myth: “Water-cooled ice machines use less energy than air-cooled machines”

- Recent Hoffman study: Air-cooled machines are responsible for less energy consumption than water-cooled ice machines
 - Considers all energy, including embedded energy in the water used for cooling
 - Download PBMP study from CUWCC - www.cuwcc.org/PBMP_reports.lasso



Myth: “Tankless water heaters reduce water use over storage-type water heaters”

- Recent Australian study:
 - “Water wastage of Gas Instantaneous Water Heaters” by Aleksander Szann
 - Gas water heater efficiency
 - Waste: up to 25 gal/day/household at the heater
- California studies:
 - Longer showers result from “unlimited hot water”



“Myths” of Water Conservation

- Again, the reasons....
 - ✓ No independent field or lab analysis
 - ✓ Reliance upon “engineered” estimates
 - ✓ Invalid test results & studies
 - Unscientific
 - Non-representative products
 - Lacking statistical validity
 - ✓ Failure to complete a Life Cycle Analysis
 - ✓ Glamorizing only the “successes”
 - ✓ Being “romanced” by the salesman



What to do...

- Be diligent & look for:
 - ✓ Independent field and lab studies
 - ✓ Customer surveys
 - ✓ Authoritative data from independent sources
 - Water utilities
 - Other independent evaluators
 - Water efficiency professionals
- ...and, **DON'T BE 'ROMANCED' BY THE SALESMAN!!**



Thank you...

Contact...

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