

This presentation premiered at WaterSmart Innovations

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Saturation Incomplete!

Have water savings opportunities been left behind?

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What is 'saturation'?

- What it is NOT
- Definitions of 'saturate':
 - *“to furnish (a market) with goods to its full purchasing capacity”*
 - *“to fill, soak, or imbue totally”*
- For our purposes, we are attempting to define what % of a geographic area is equipped with a water-efficient product.

Why do we do saturation studies??

- Demand forecasting
- Budgeting
 - ◆ Water utility operations
 - ◆ Conservation programs
- Set conservation program direction/priorities
- Inform regulators and legislative bodies
- Tracking and reporting

Different approaches to saturation studies...

- “Bottom up”
 - ✓ Customer/public canvassing
 - Mail surveys
 - Phone surveys
 - On-premise visits & inspections
 - ✓ Low error rate (with proper structure)
 - ✓ Expensive & usually time consuming
- “Top down”
 - ✓ No customer surveys – use available data
 - ✓ e.g., market data, permitting data, demographics
 - ✓ Moderate error rate
 - ✓ Inexpensive and fast turnaround

Plumbing products – saturation history

- Los Angeles – 1996
 - ✓ By MWDSC for City of L.A.
 - ✓ Saturation study of residential toilets
 - ✓ For each ZIP code (several hundred)
 - ✓ *PURPOSE?* Conservation program targeting
 - ✓ “Top-down” structure
- California – 2005
 - ✓ CUWCC saturation study of plumbing fixtures
 - ✓ Statewide
 - ✓ Residential & CII
 - ✓ Toilets & urinals
 - ✓ “Top-down” structure

Plumbing products – saturation history

- 5-State study - 2017
 - ✓ AWE study of “non-efficient” toilets
 - ✓ Residential only
 - ✓ *PURPOSE?* Inform regulators/legislators
 - ✓ Arizona, California, Colorado, Georgia, Texas
 - ✓ “Top-down” structure

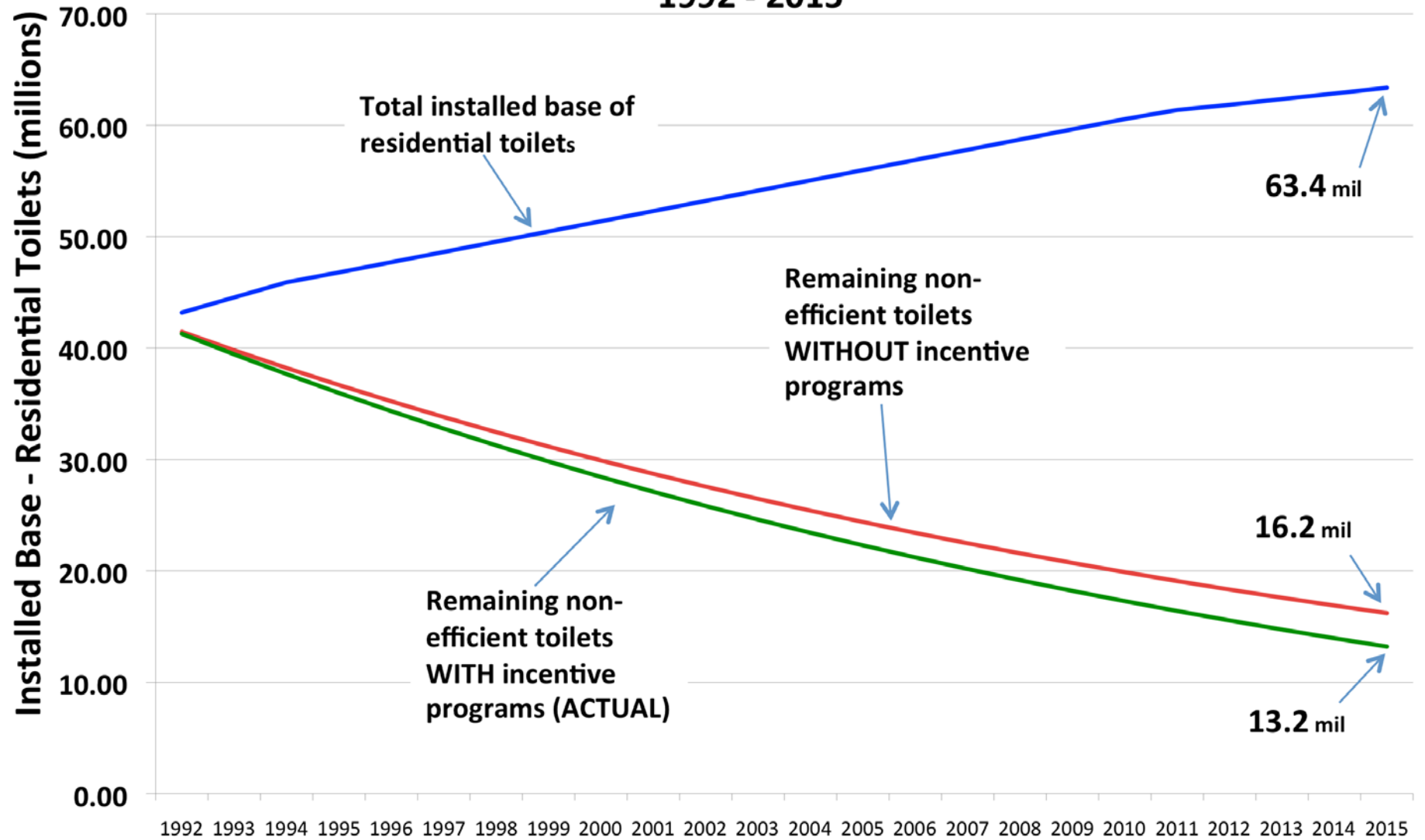
AWE 2017 Saturation Study – Details

- “Non-efficient” residential toilets
 - ✓ Installed base – 3.5 gpf (13Lpf) or greater
 - ✓ Arizona, Calif, Colorado, Georgia, Texas
- Sources
 - ✓ U.S. Census data
 - Population & Housing Demographics
 - American Housing Surveys - regional
 - Bathroom counts
 - Occupancies
 - ✓ State data
 - Demographics
 - Demand forecasts
 - Saturation studies
 - ✓ Water utility program history



5-State Summary - Residential Toilets

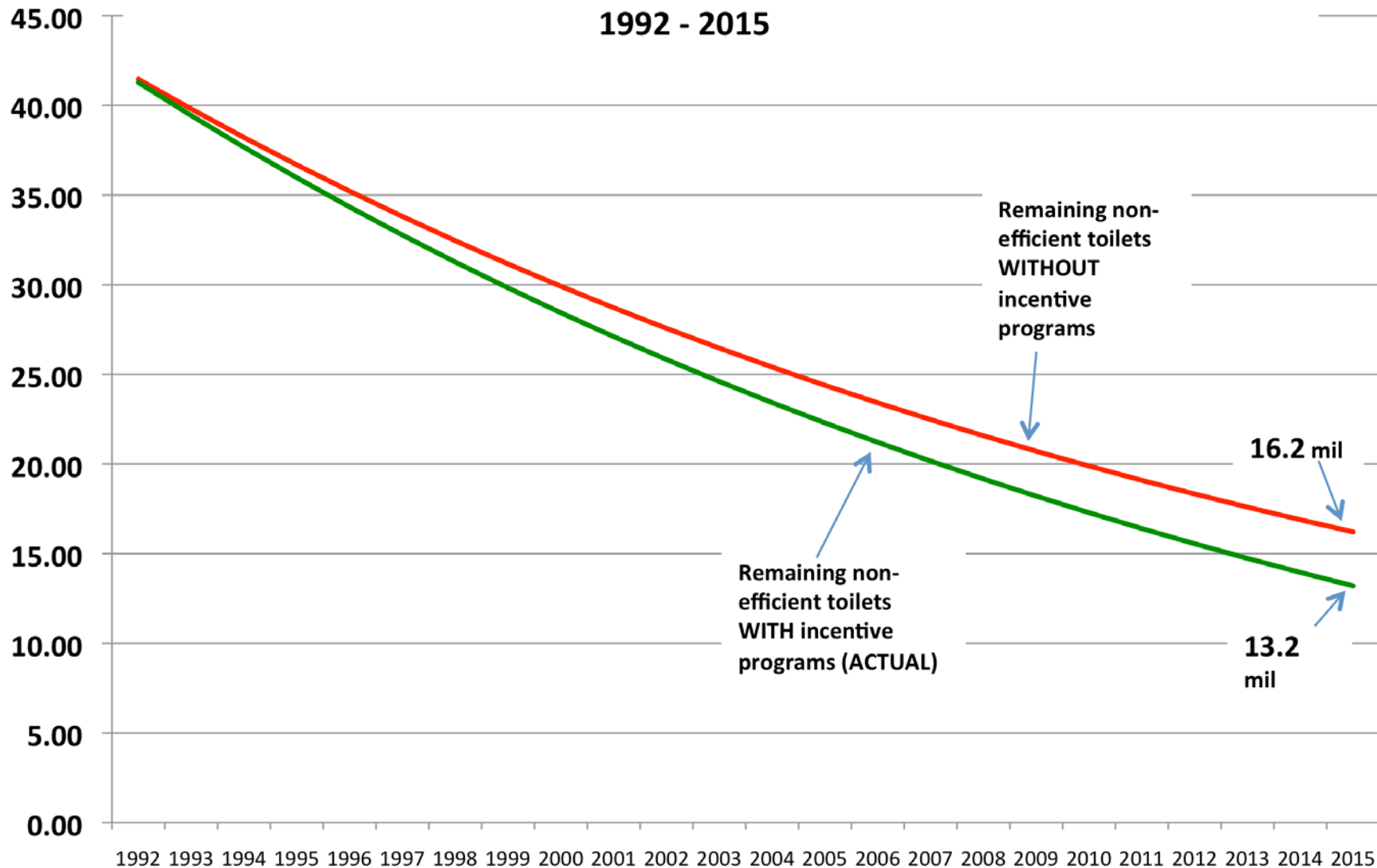
1992 - 2015



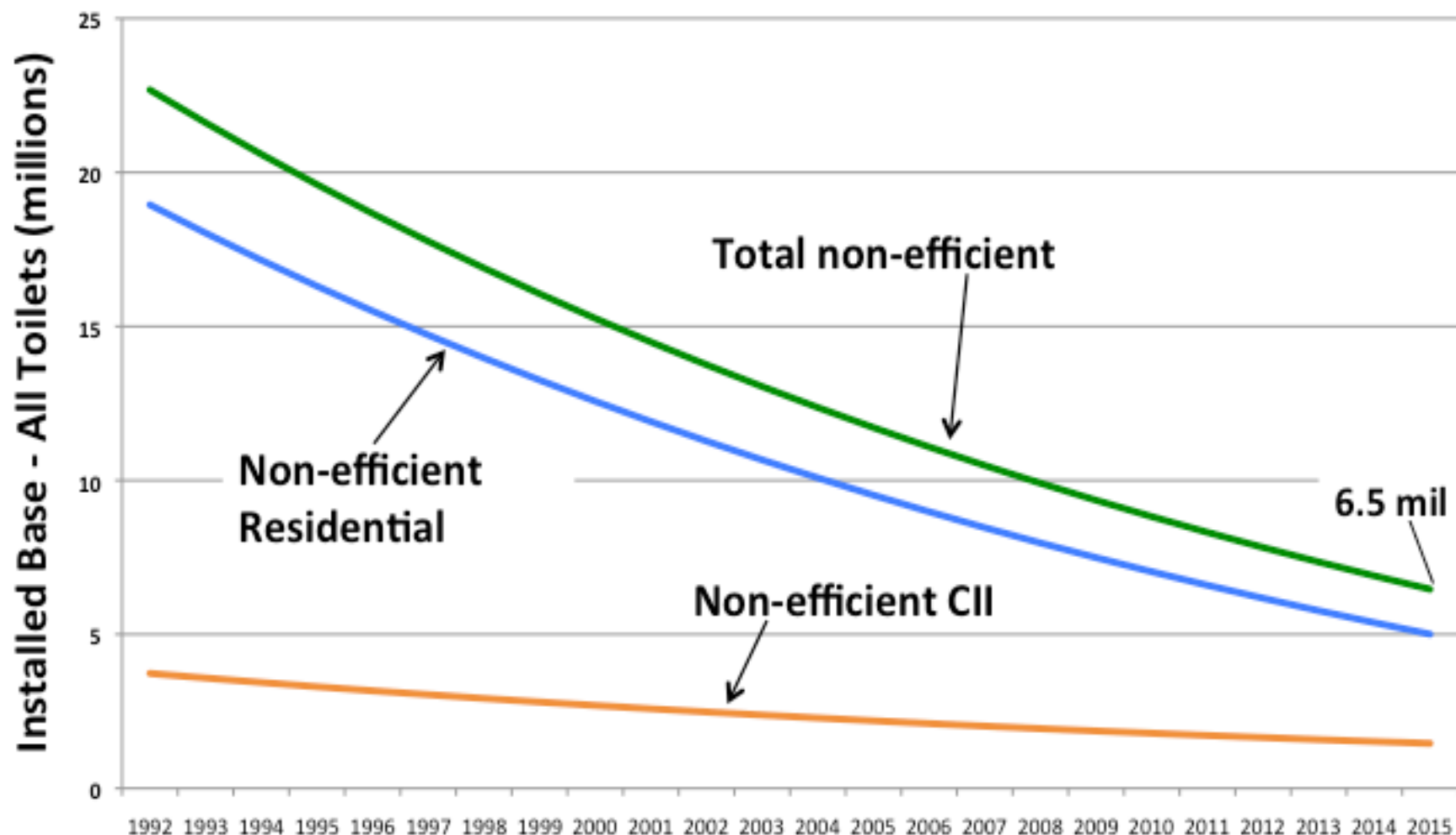
Saturation of Non-efficient Residential Toilets - 5 States

1992 - 2015

Installed Base - Residential Toilets (millions)



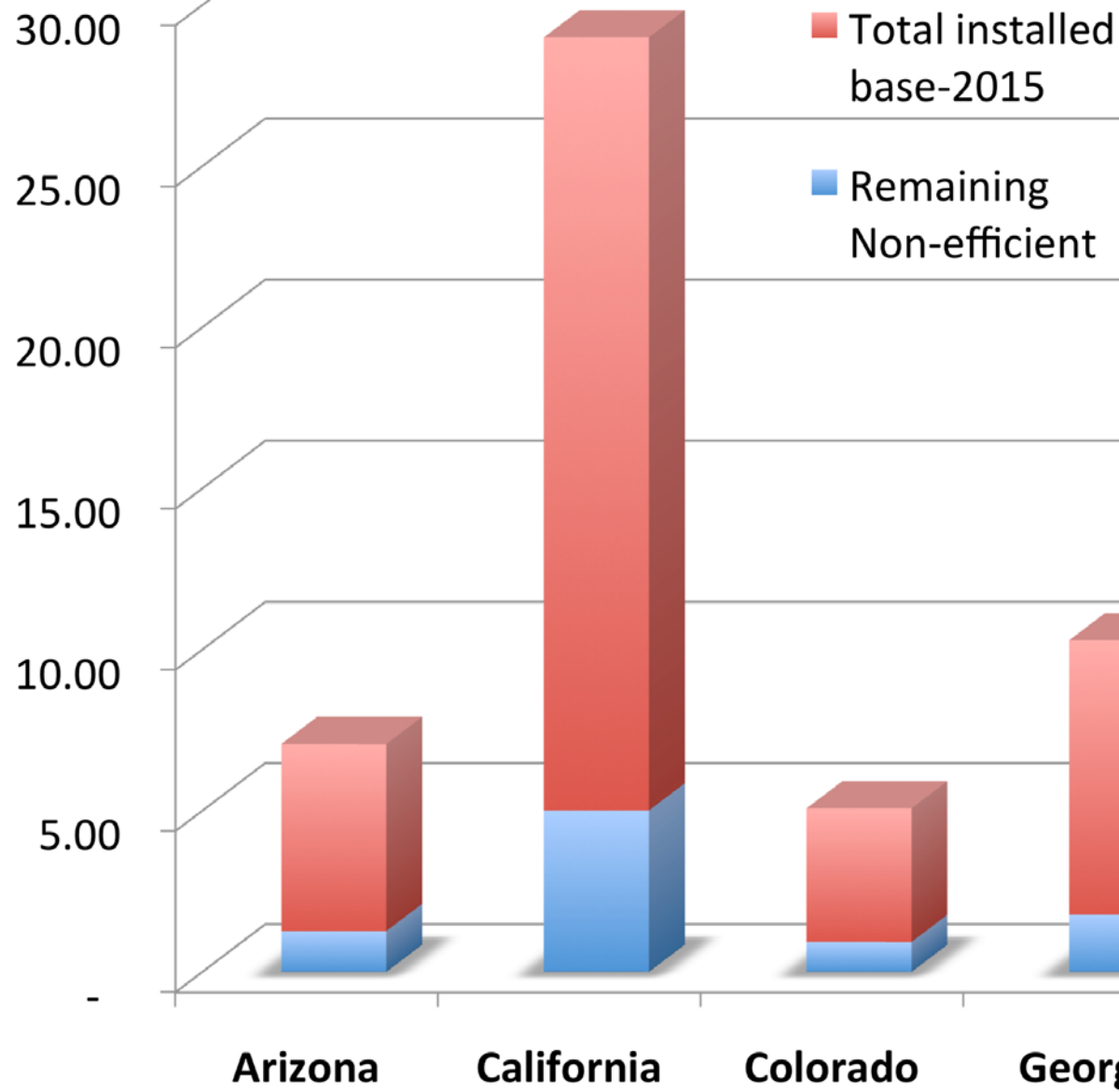
Saturation of Non-Efficient Toilets - California 1992 to 2015



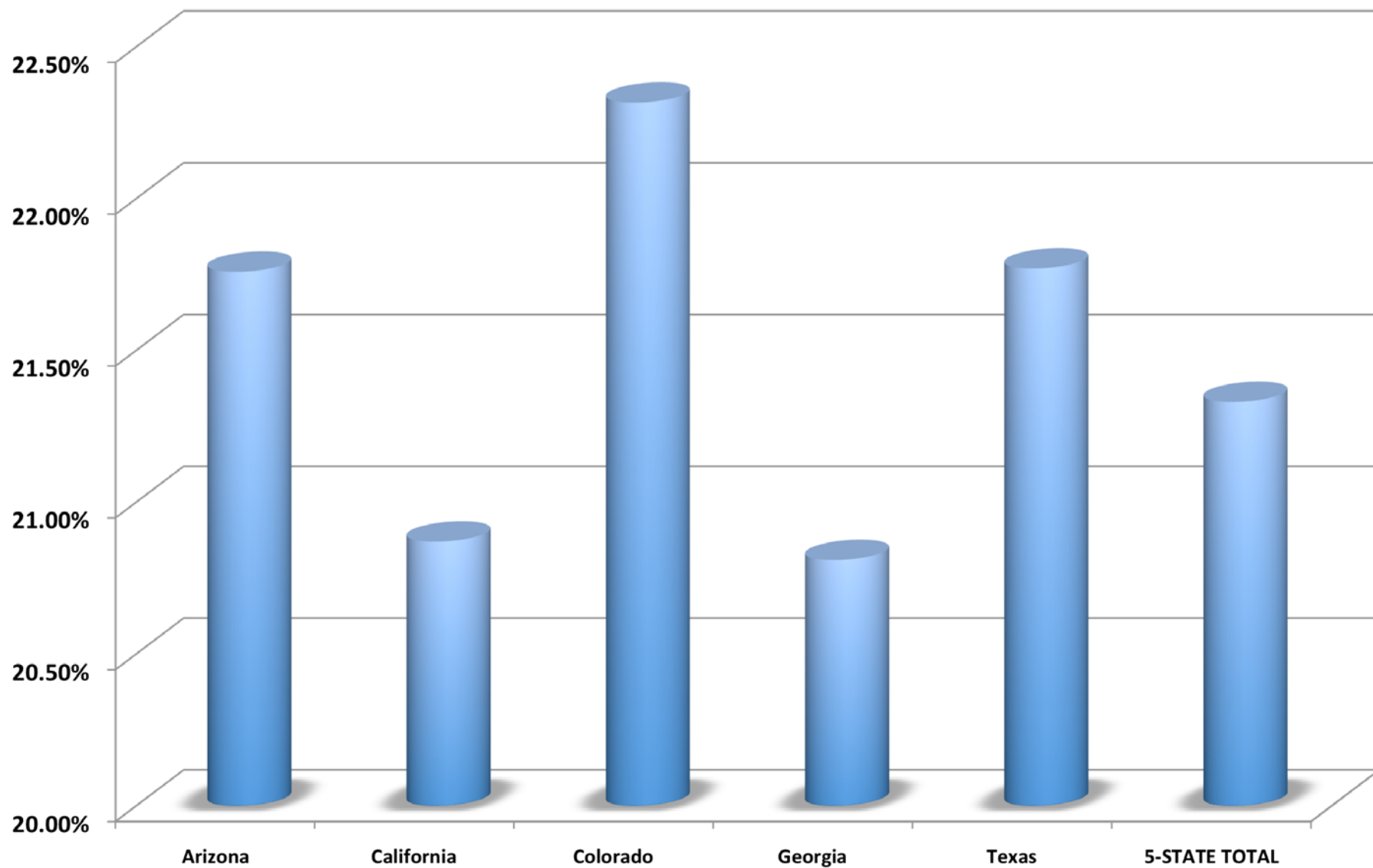
Sources: David Mitchell, M.Cubed and
John Koeller, Koeller & Company

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Installed Base - Residential Toilets (millions)



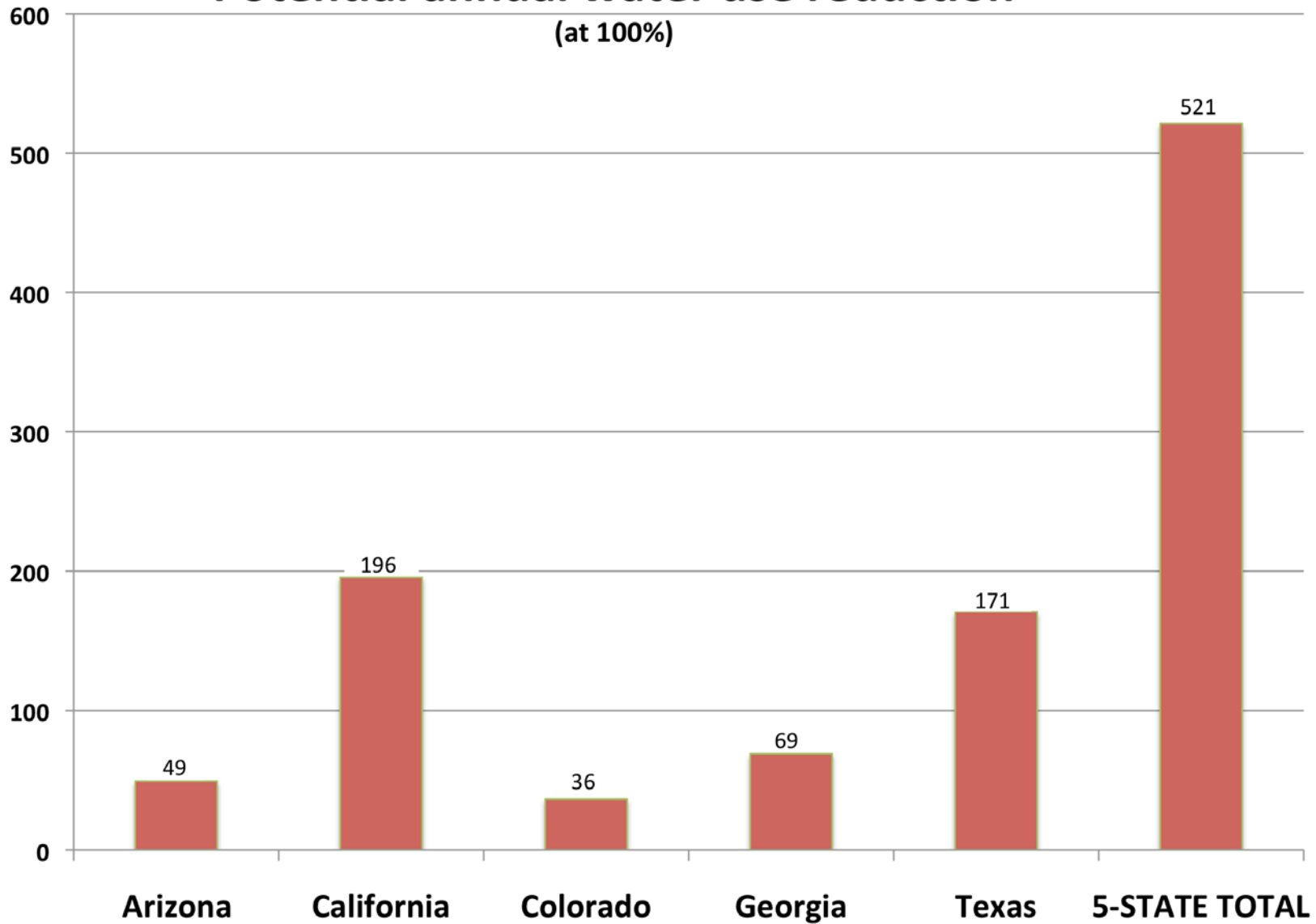
Percent saturation of non-efficient residential toilets - 2015



Potential annual water use reduction

(at 100%)

Thousands of acre-feet



Conclusions

- 13.3 million non-efficient residential toilets remain in the 5 states
- Represent 170 BILLION gallons (520,000 AF) of potential annual water savings (at 100%)

Conclusions

- Question: Is replacing these aging, non-efficient fixtures more expeditious and productive than engaging in continued administrative attempts to mandate lower water consumption standards in view of:
 - Drainline and sewer flow issues
 - Health & safety issues
- Answer: Yes



Thank you...

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