

Working With Your Industrial, Commercial, & Institutional Customers (ICI)



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What is ICI?

Industrial Water Use

- **Manufacturing**
- **Power Generation**
- **Mining**

Commercial / Institutional Water Use

- **Hospitals, Eldercare, Clinics, Laboratories**
 - **Offices and Government Buildings**
- **Laundry and Car and Vehicle Wash Facilities**
 - **Schools and Universities, Zoos**
 - **Parks, Playgrounds, Golf Courses**
 - **Hotels, Events Centers, Dormitories**
- **Restaurants, Grocery Stores, Food Service**
 - **Pools, Water Features, Water Parks**
- **Zoos, Laboratories, Shopping Centers, Animal Care Facilities**
 - **Etc.**

Light Industrial/Commercial Water Uses

Many operates like commercial operations

- Light industry
 - Plastics extrusion, forming, etc.
- Commercial painting, plating, coating operations
 - Bakeries and small food processors
 - Small metal workers
 - Marble, ceramic and cultured stone
 - Concrete ready mix
 - Small bottlers and brewers
- Data centers, refrigerated storage
 - Etc.

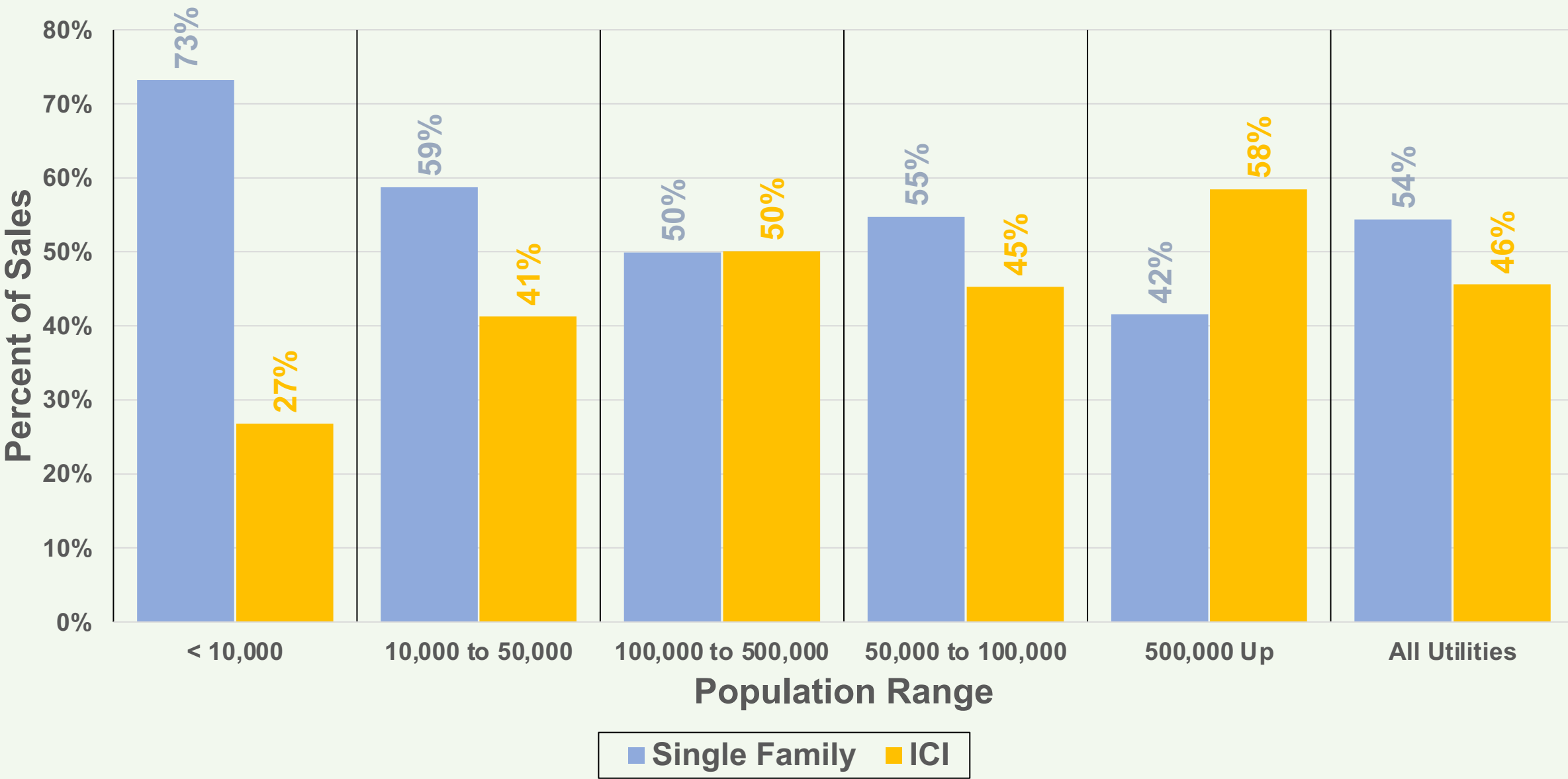
So Where Does Multi-Family Fit in ICI Conservation Programs?

- You don't ask a tenant if you want to take part in a plumbing retrofit program, you ask the manager.
- The manager's staff set the irrigation schedule.
- The staff clean the swimming pool.

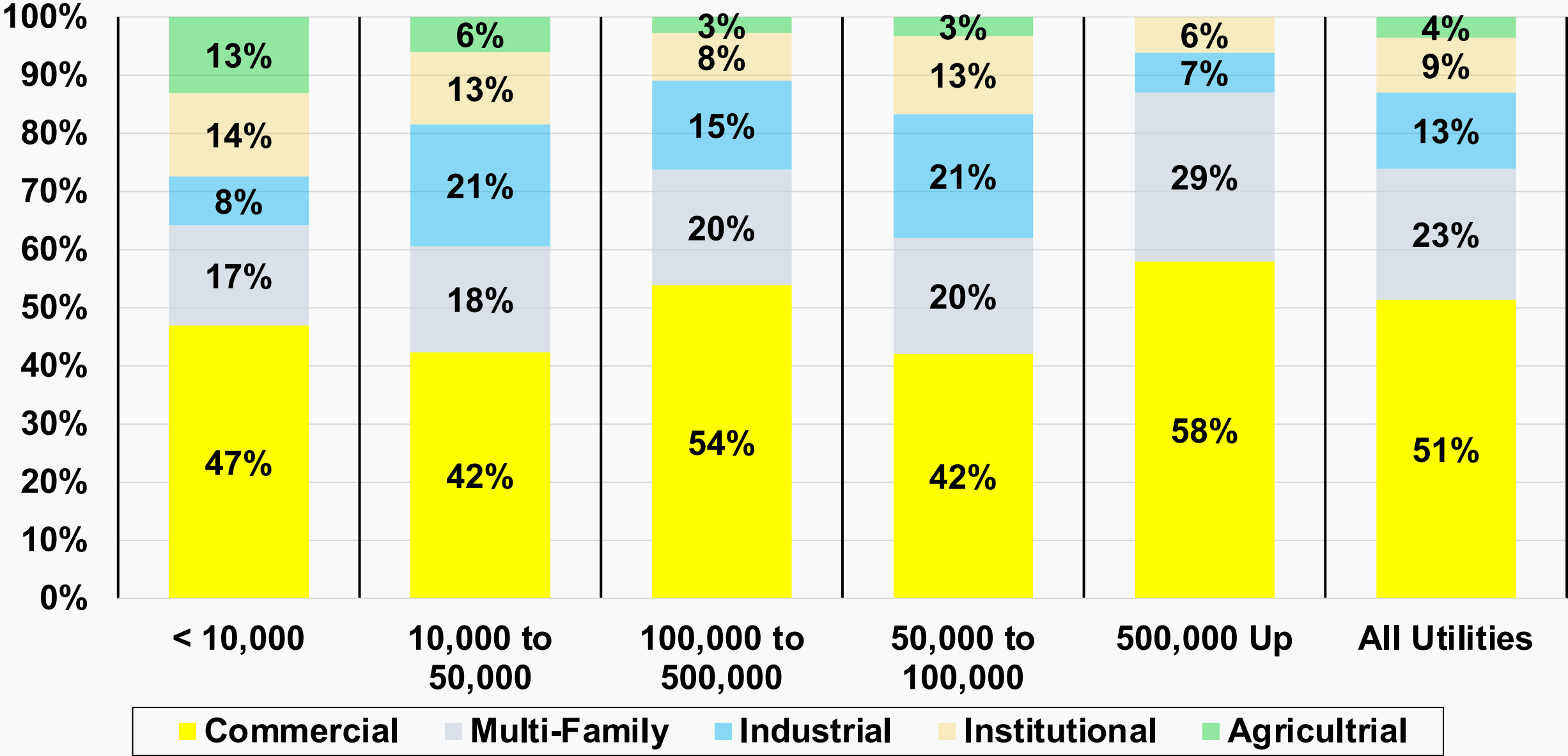
**Multi-Family is a Business
and Part of ICI**

**What Part of Water Sales
is the ICI Category?**

Water Sales in Texas in 2022



ICI Sales by Type in Texas in 2022



Breakdown of Commercial Facilities in Texas

Source: CBECS 2018

Building Use	Percent of Buildings	Percent of Floor Space
Office	21%	18%
Warehouse and storage	20%	19%
Service <i>(SEE NEXT SLIDE)</i>	14%	6%
Retail	11%	15%
Public assembly	8%	8%
Education	8%	17%
Religious worship	7%	6%
Food service	6%	2%
Lodging	2%	7%
Health care	2%	3%

If ICI is not part of your program,
you are missing almost
half of your Water Sales!

How ICI Uses Water

**Some things in ICI water
use are familiar, and
*some things are not.***

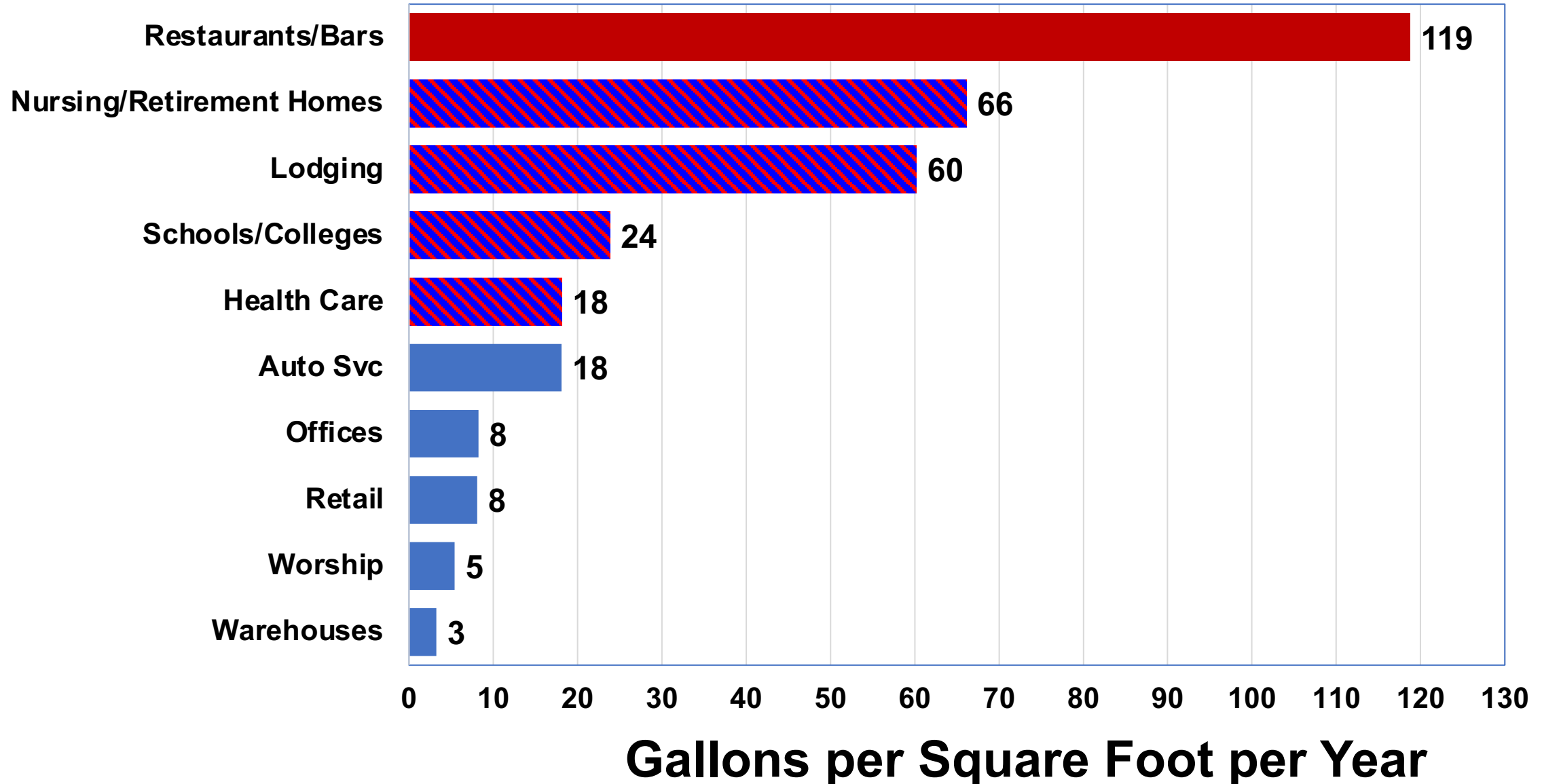
It is more than you find in Homes

for Example - *Restrooms & Plumbing*

- **Toilets**
- **Urinals**
- **Faucets**
- **Showers**
- **Bidets**
- **Mop Sinks**
- **Trap Primers**
- **Hot Water Systems**
- **Fire Suppression**

WRF 4618 Averages of Six Utilities Across the USA

source: Water Research Foundation 4619 Developing Water Use Metrics for the Commercial and Institutional Sectors, <https://www.waterrf.org/research/projects/developing-water-use-metrics-commercial->



Water Uses Unique to Food Service

- *Scullery Operations*
- *Food Preparation*
- *Refrigeration and Ice making*
- *Sanitation and Wash down*

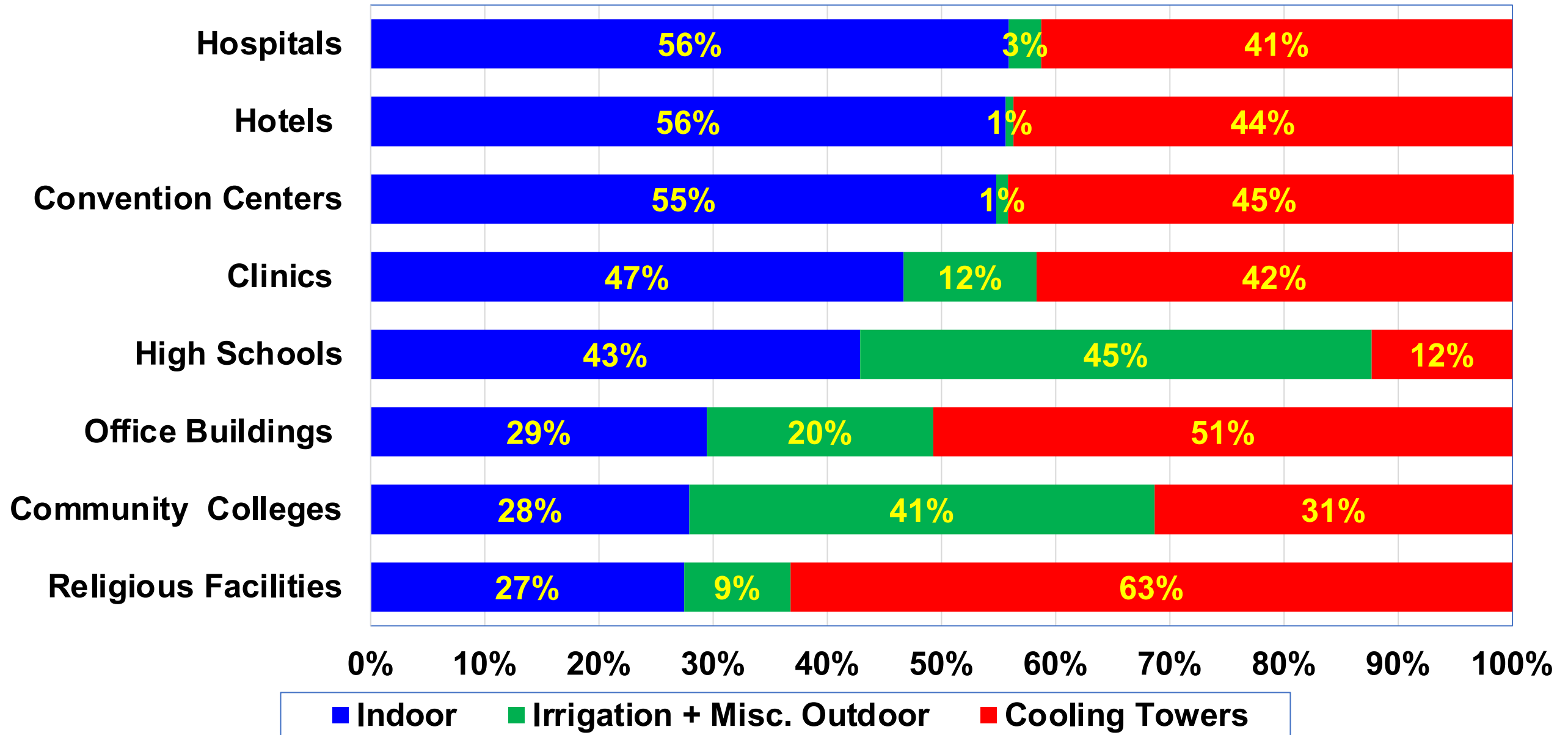
Types of Industrial Water Use

1. Process Cooling
2. AC Cooling
3. Refrigeration Cooling
4. Employee sanitation
5. Landscape irrigation
7. Air Pollution
8. Equipment cleaning
9. Process
10. Inclusion in product
11. Dust Control
12. Area wash-down
13. ????

Hospital Water Using Areas

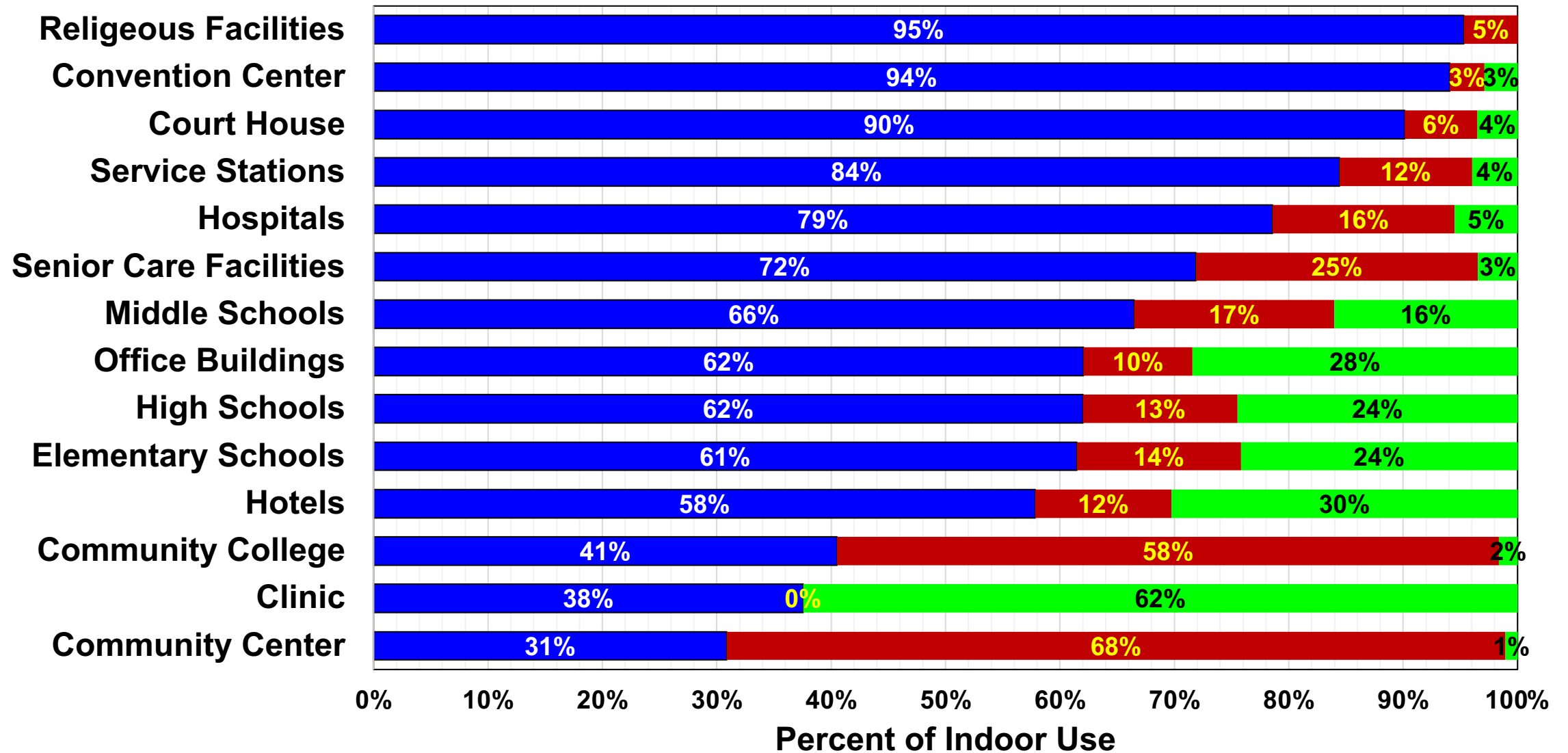
- Food Service
- Plumbing
- Landscape
- Boilers
- Cooling Towers
- Laundry
- Water Treatment
- Cleaning
- Leaks
- X – Ray
- Sterilizers
- Laboratory cooling
- Surgical Areas
- Hydrotherapy
- Kidney Dialysis
- Hood scrubbers
- Medical Laboratory
- Vacuum Pumps
- Test Animal facilities
- Other????

Water Use by Facilities with Cooling Towers
Based on Water Audits in Austin, Fort Worth, and Dallas



How Water Is Used Indoors at Audited Facilities

Audits in Austin, Dallas, and Fort Worth



■ Restroom Use

■ Food Service

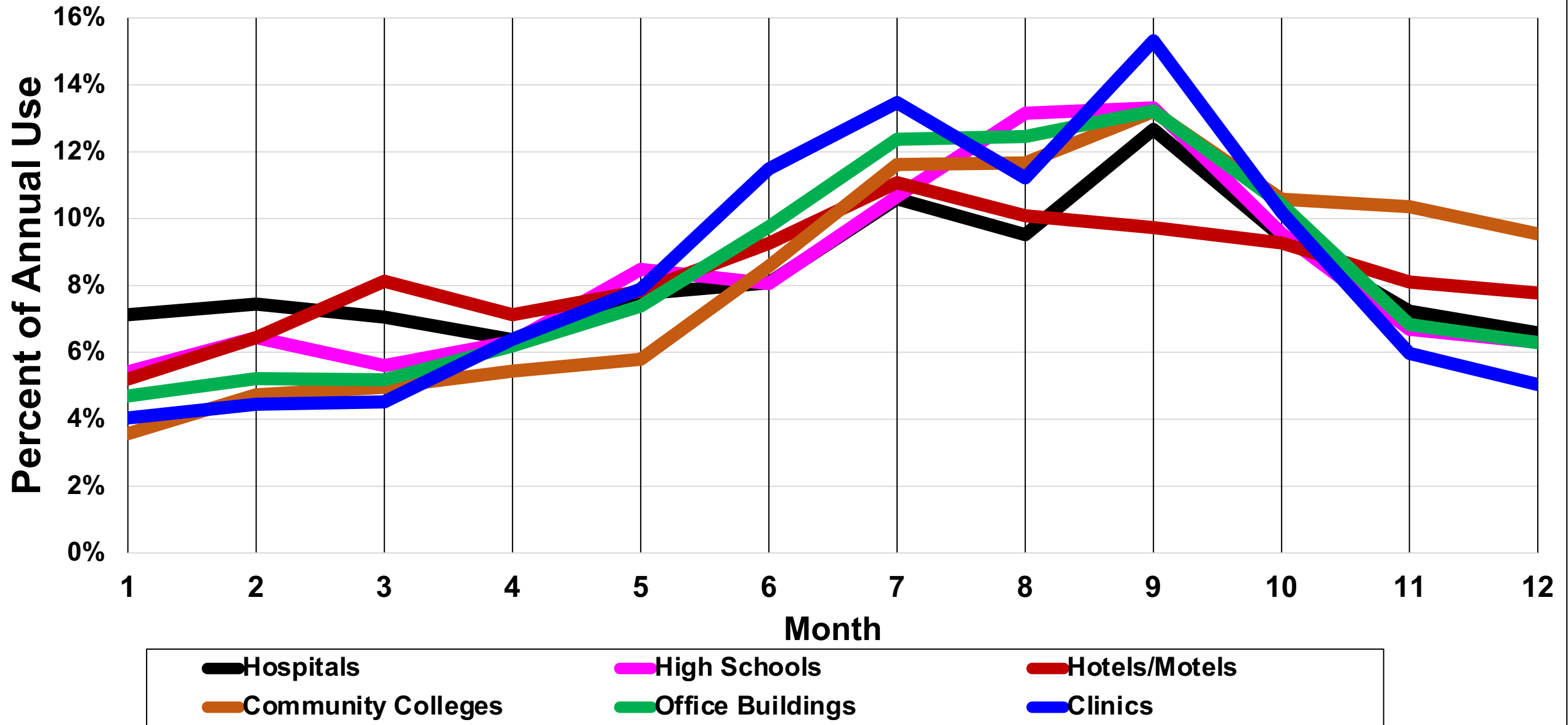
■ Other (medical, water treatment, laundry, leaks, etc)

The Forgotten Topic

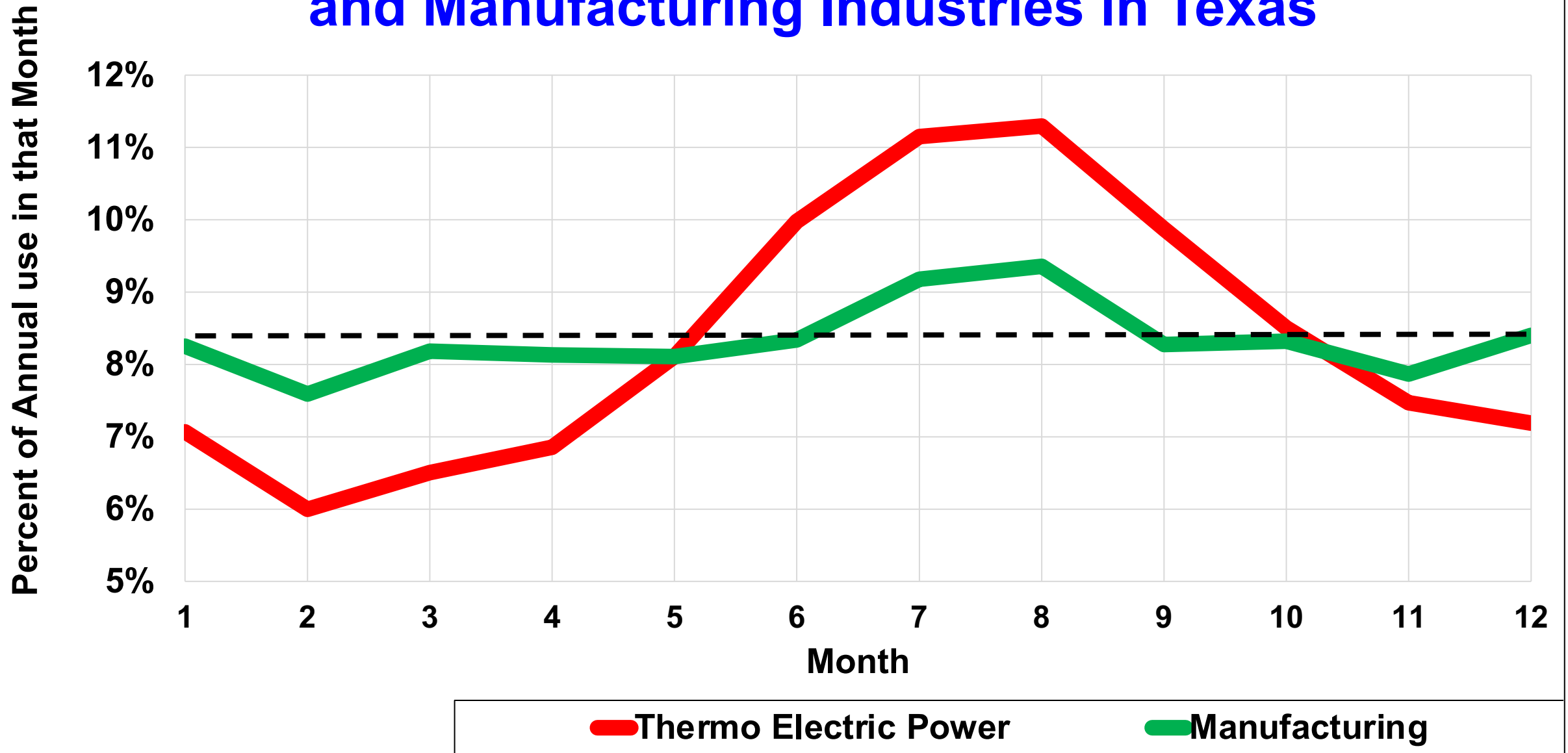
*The energy-water nexus of the **end user***

- Domestic Hot Water Use
- Boilers
- Food Steamers and Combination Ovens
- Commercial Ice Machines
- Commercial Laundry Equipment
- Dish Washers (domestic and commercial)
- Cooling Towers
- Sterilization
- Refrigeration Equipment
- Pressure Washers
- Etc.

Monthly Use Distribution by Commercial / Institutional Facilities in Fort Worth, Dallas, & Austin



Monthly Distribution of Water Use by the Power and Manufacturing Industries in Texas

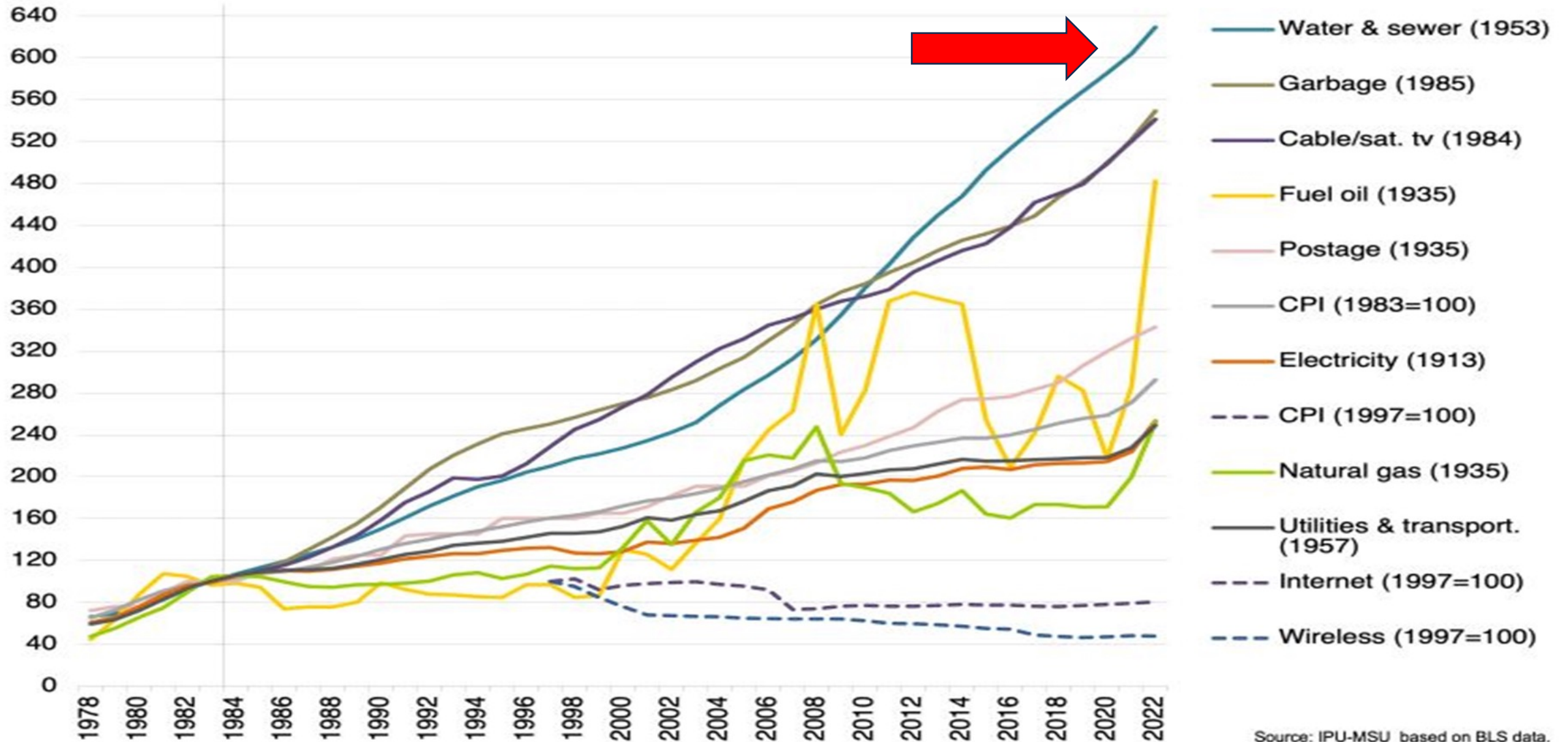


The Future Dollar Side

Rise in water Costs

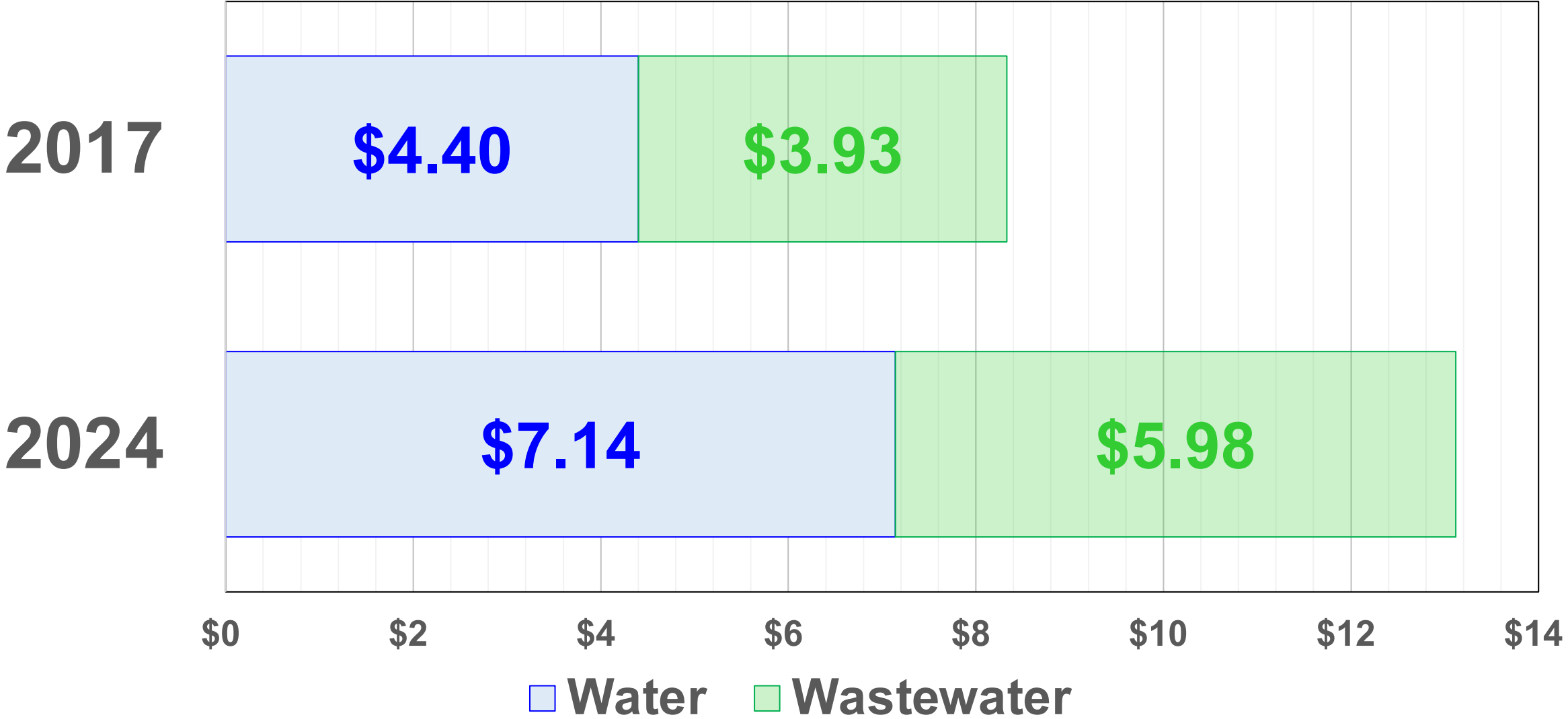
Janice Beecher U of Michigan

Trends in the Consumer Price Index (CPI) for public utilities (BLS)



Source: IPU-MSU based on BLS data.

Average Commercial Rates in Texas



According to the U.S. Bureau of Labor Statistics, prices for water and sewerage maintenance are 3,761.57% higher in 2022 versus 1952 (a \$752.31 difference in value). Between 1952 and 2022: Water and sewerage maintenance experienced an average inflation rate of

5.36% per year.

It doubles every 13.4 years!

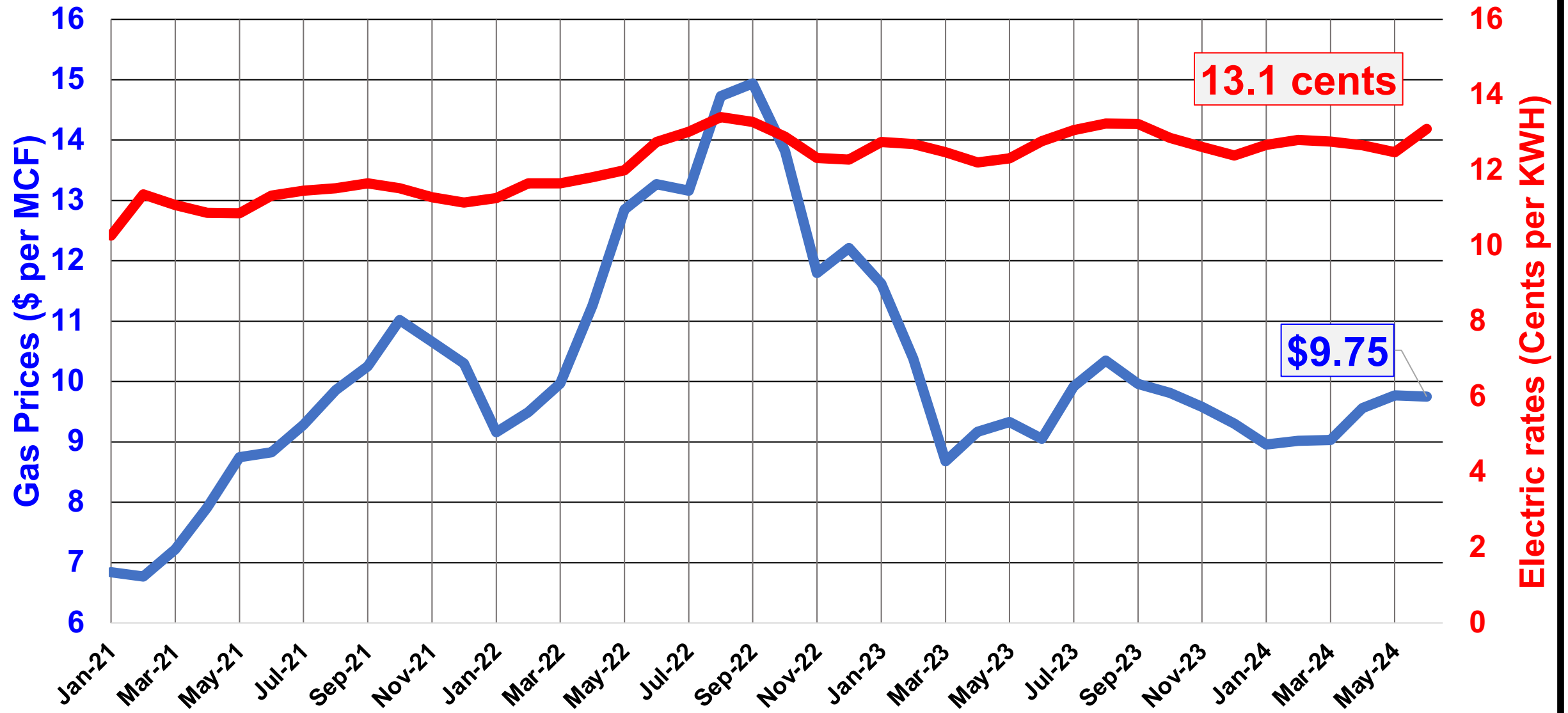
Future Cost of Water per Gallon in Texas at 5.36% Inflation

Year	Cents per Gallon
2024	1.31
2034	2.10
2044	3.54
2054	5.96

Cost to Flush a Toilet in Future Years at 5.36% Inflation

Gallons per Flush	Cents per Flush			
	2024	2034	2044	2054
5	6.55	10.50	17.70	29.80
3.5	4.59	7.35	12.39	20.86
1.6	2.10	3.36	5.66	9.54
1.28	1.68	2.69	4.53	7.63
1	1.31	2.10	3.54	5.96
0.8	1.05	1.68	2.83	4.77
0.75	0.98	1.58	2.66	4.47

Texas Commercial Natural Gas and Electric Rates since 2021



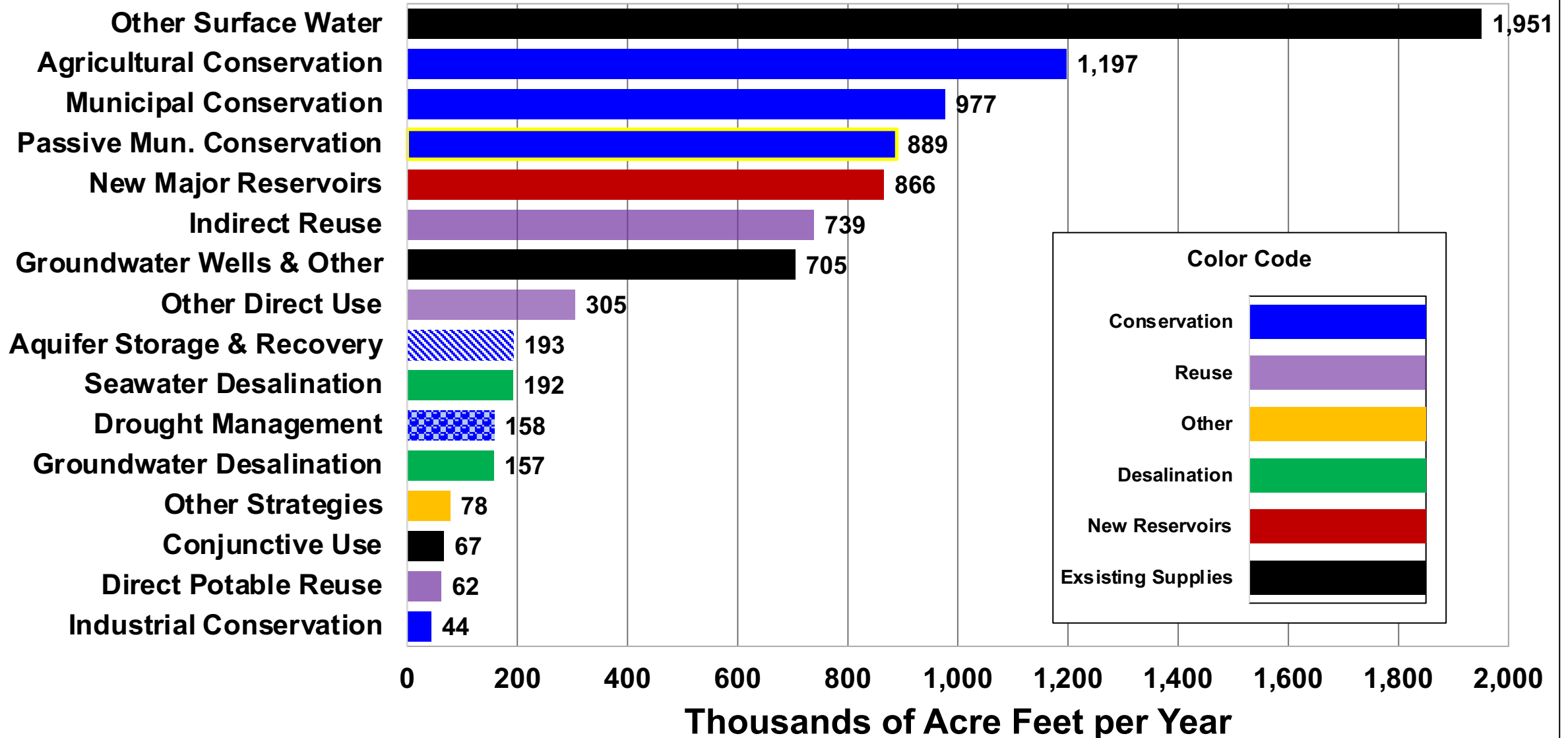
The True Cost of Water

- **Water Cost**
- **Sewer/Pre-treatment**
 - **Energy**
 - **Chemicals**
- **Solid Waste Disposal**
- **Capital Equipment**
 - **Labor**
 - **Liability**

Future Water Use and Supply in Texas

Statewide Water Strategies to Meet 2070 Demand

Including Passive Conservation (CODES)

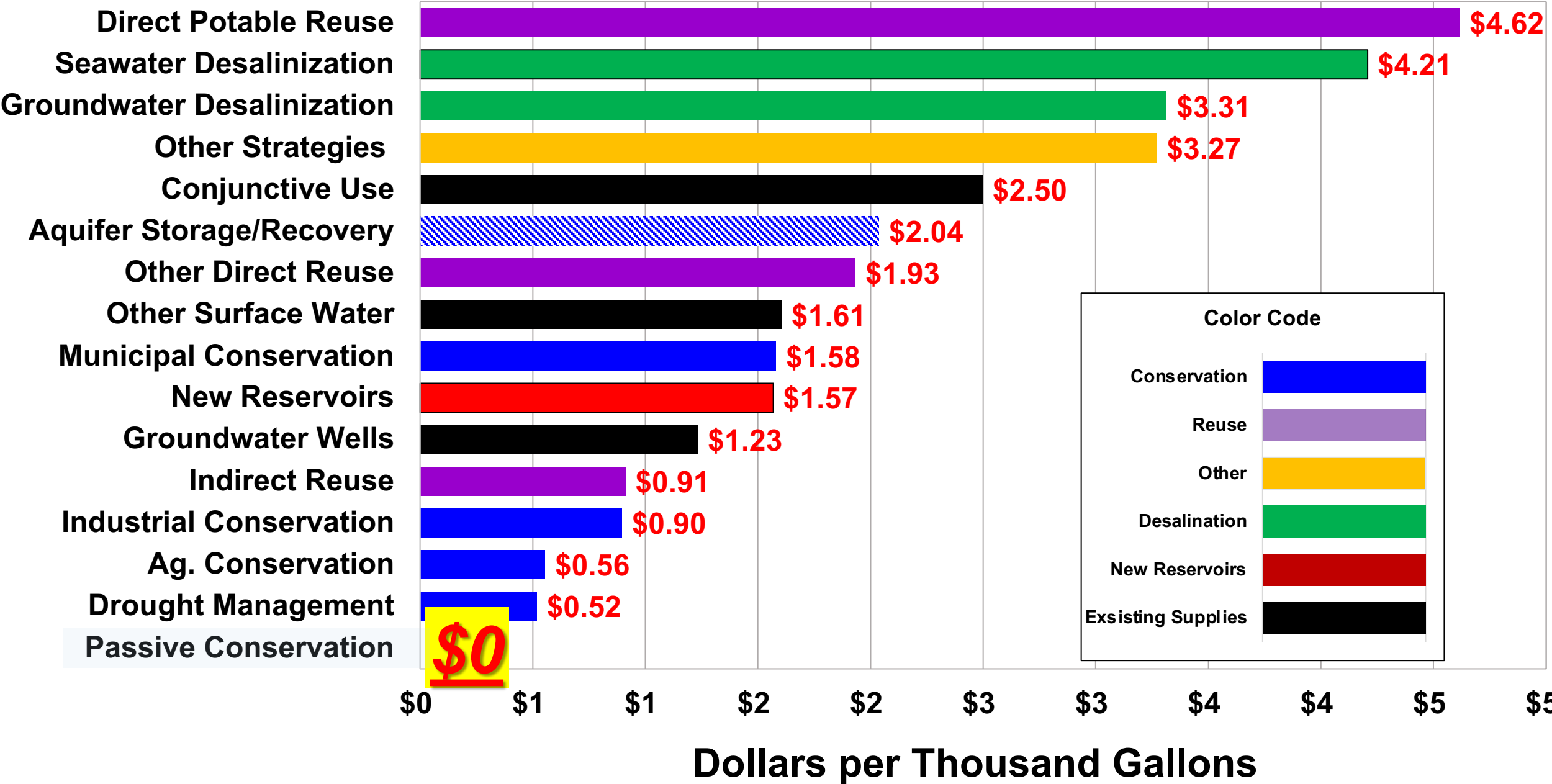


The Importance of Plumbing Codes

*Plumbing Codes and Appliance Efficiency Standards Will Provide
889,000 Acre Feet (794 MGD) of Savings in 2070*

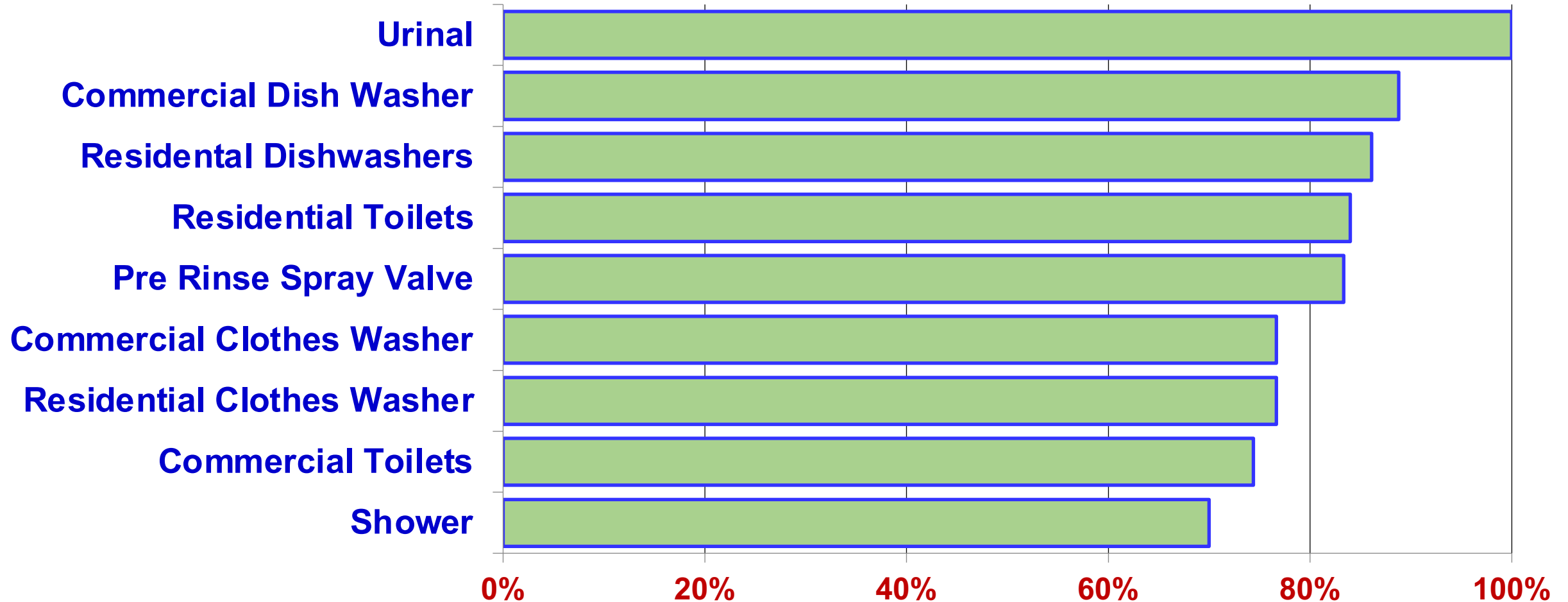


Cost of Water in Dollars per Thousand Gallons in 2070



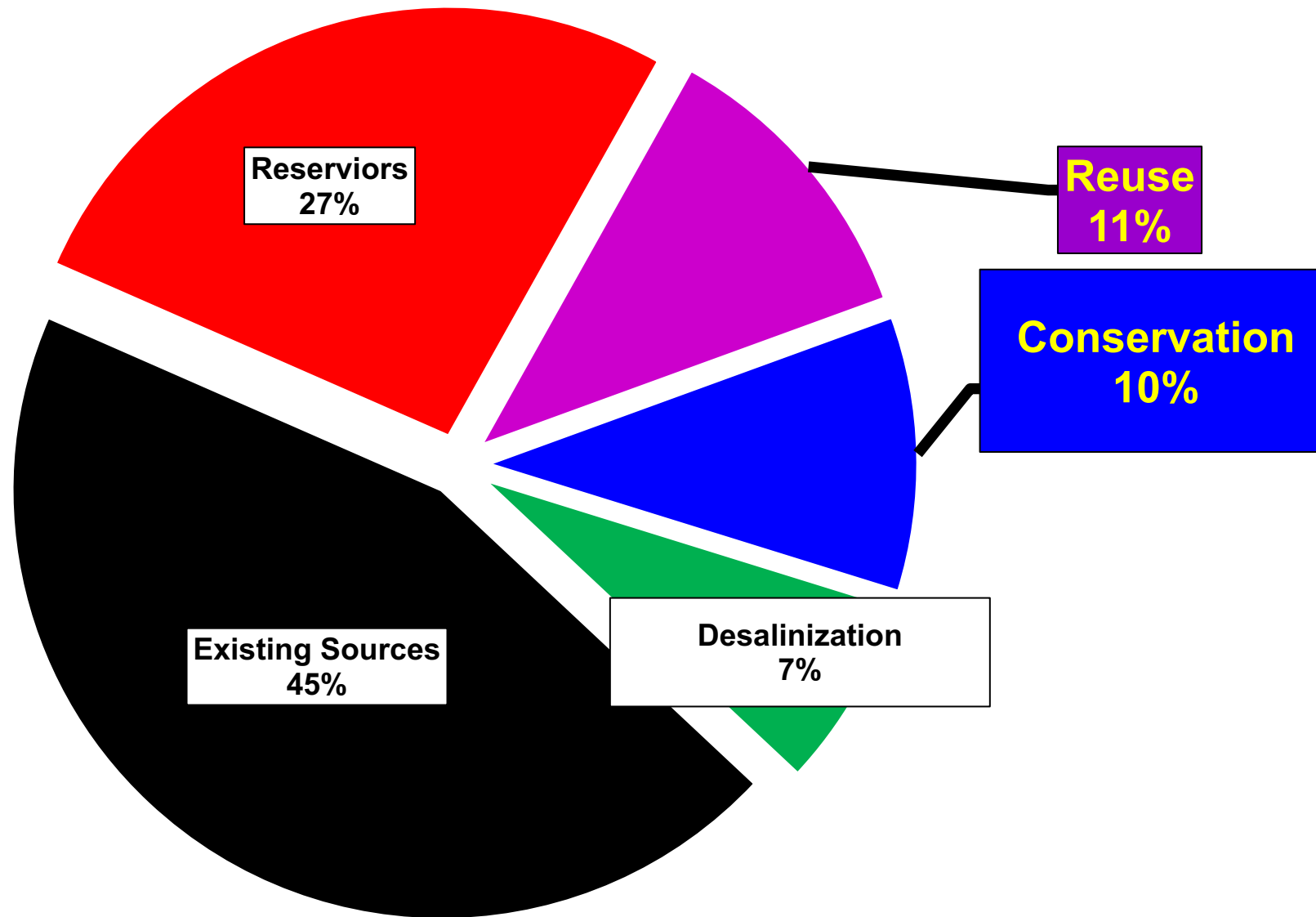
How has new technology helped?

Reduction in Water Use Since 1980



Percent Reduction in Use for **Best in Class**

Distribution of 83.4 Billion Dollars in Capital Cost Needed in Texas by 2070



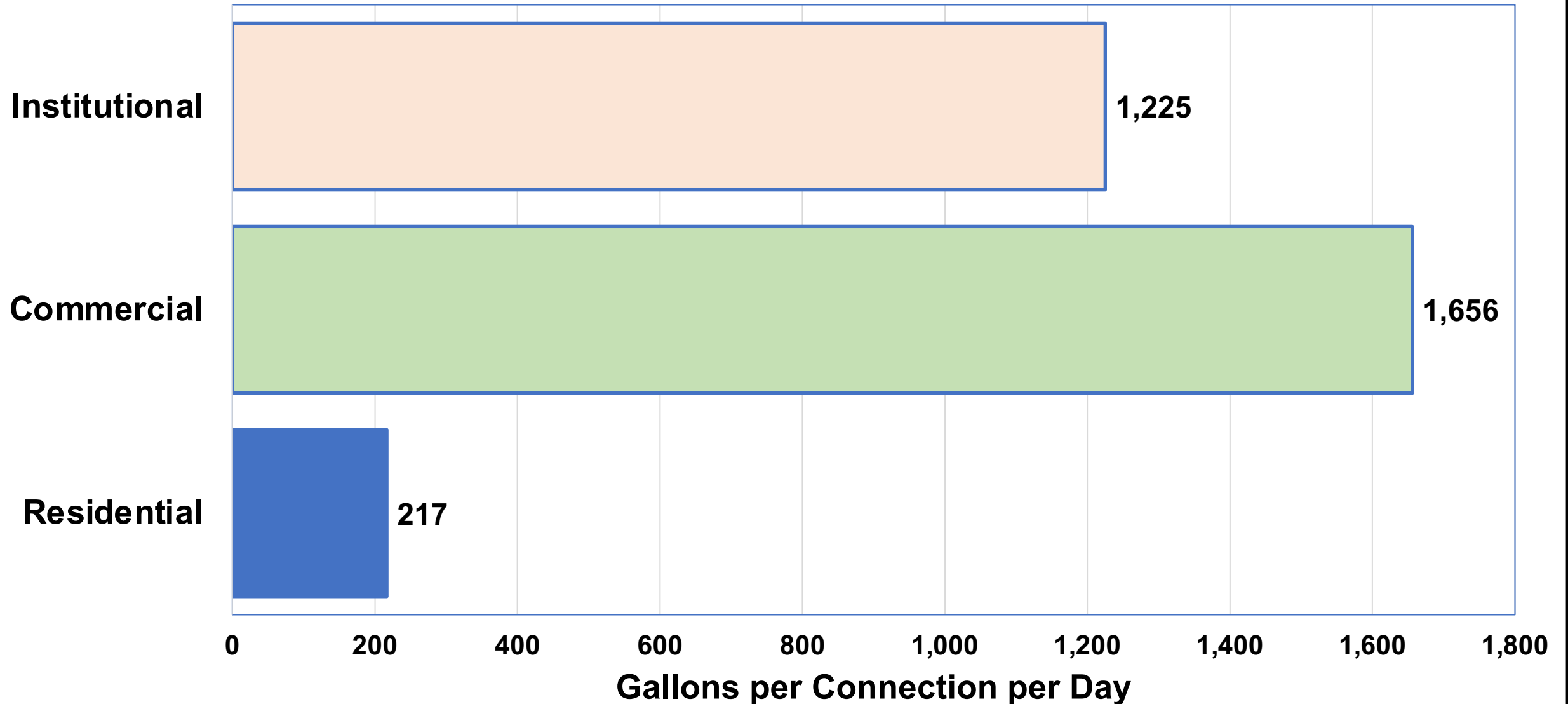
Conservation and reuse account for only 21% of future capital cost but supply 55% of future supply.

**The Cheapest Water
You Will Ever Have
Is The Water You
Already Have!**

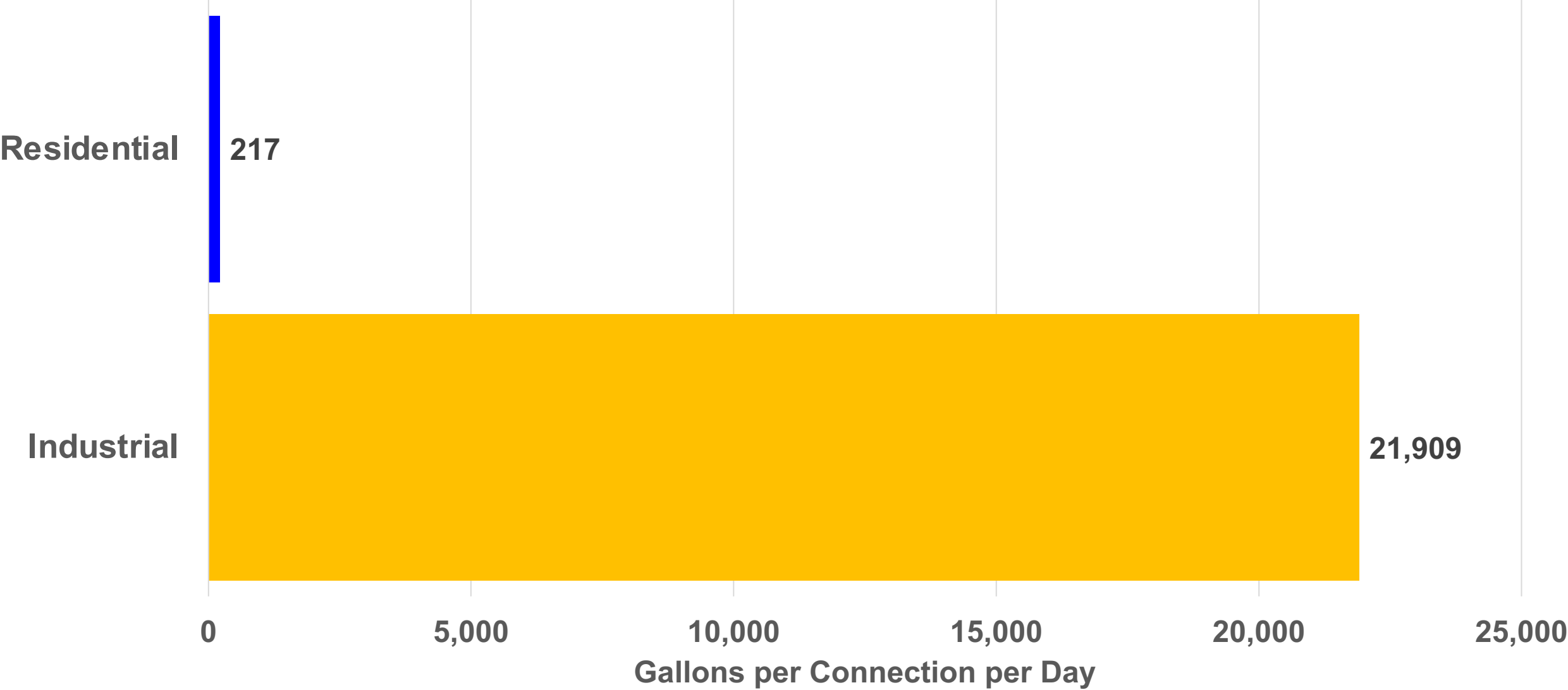
Savings Examples

More Bang for the Buck!

Comparison of Texas Utility Sales Volume Residential vs. Institutional and Commercial



Comparison of Texas Utility Sales Volume per Connection for Single Family Use vs. Industrial Users



The opportunities of ICI water conservation programs to save water are significant.

**It is up to *you* to
implement these programs in
your utility!**

No Water,

No Beer!

**Napoleon once said an army
marches on its stomach!**

***Our economy and society
marches on water!***

Thank You!

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