

Lessons Learned

Water Saving Ideas for the Commercial Sector From Breweries and Distilleries

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Five Water Conservation Principles that all Large Business Have in Common

1. Water is on the radar screen

2. Metering & benchmarking

3. Progress takes many forms

4. Many uses are the same

5. Sources of Assistance

Texas Stats

STATE CRAFT BEER PRODUCTION & SALES DATA, 2013

Choose a State ▾



TEXAS

FIND A BREWERY ▶

STATE LAWS ▶



0.5 Breweries per Capita*
(RANKS 42ND)

*per 100,000 21+ Adults

\$
ECONOMIC IMPACT
(2012)

2,316.2
Million Economic Impact
(RANKS 2ND)

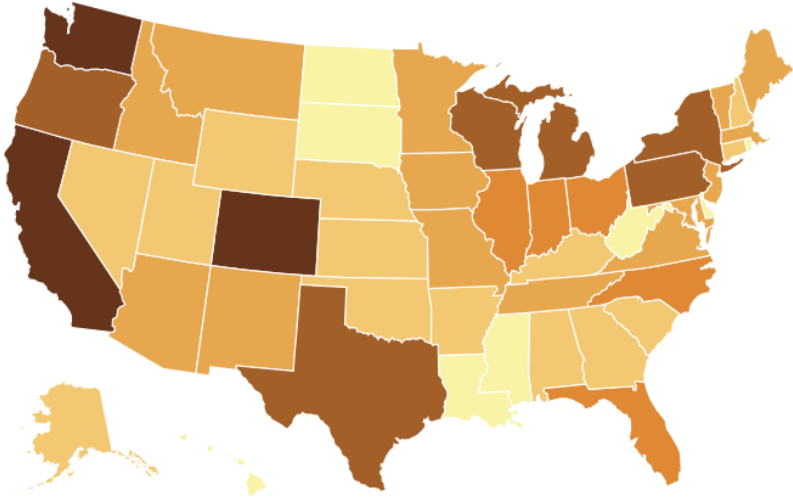
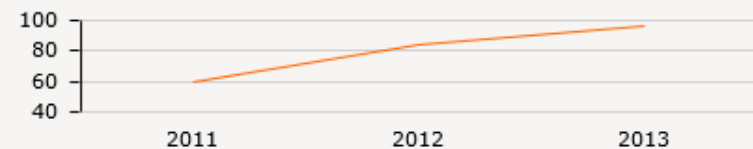
129
Impact per Capita
(RANKS 34TH)

PRODUCTION
(2013)

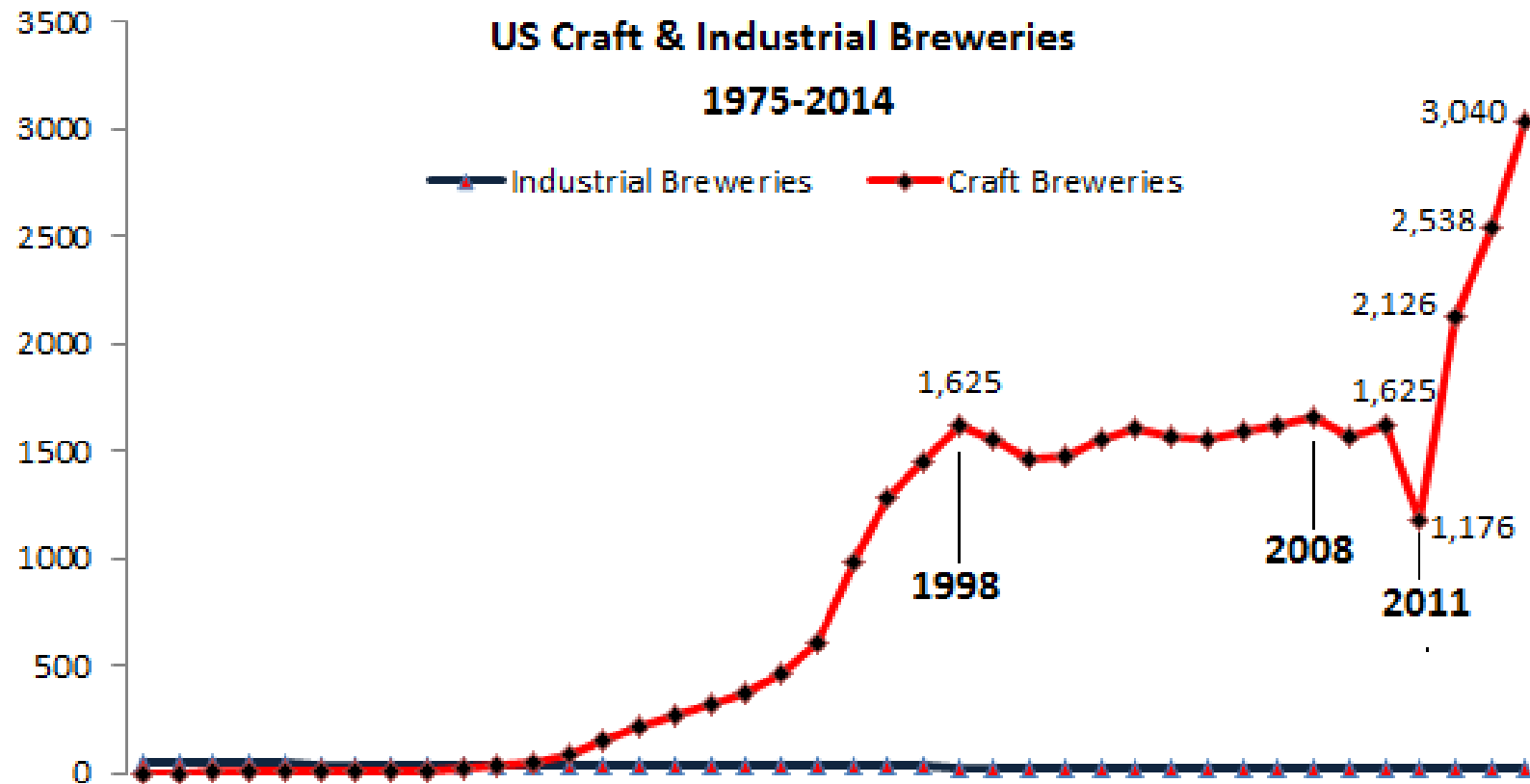
848,259
Barrels of Craft beer
produced per year
(RANKS 7TH)

1.5
Gallons per 21+ Adult
(RANKS 21ST)

NUMBER OF BREWERIES PER YEAR

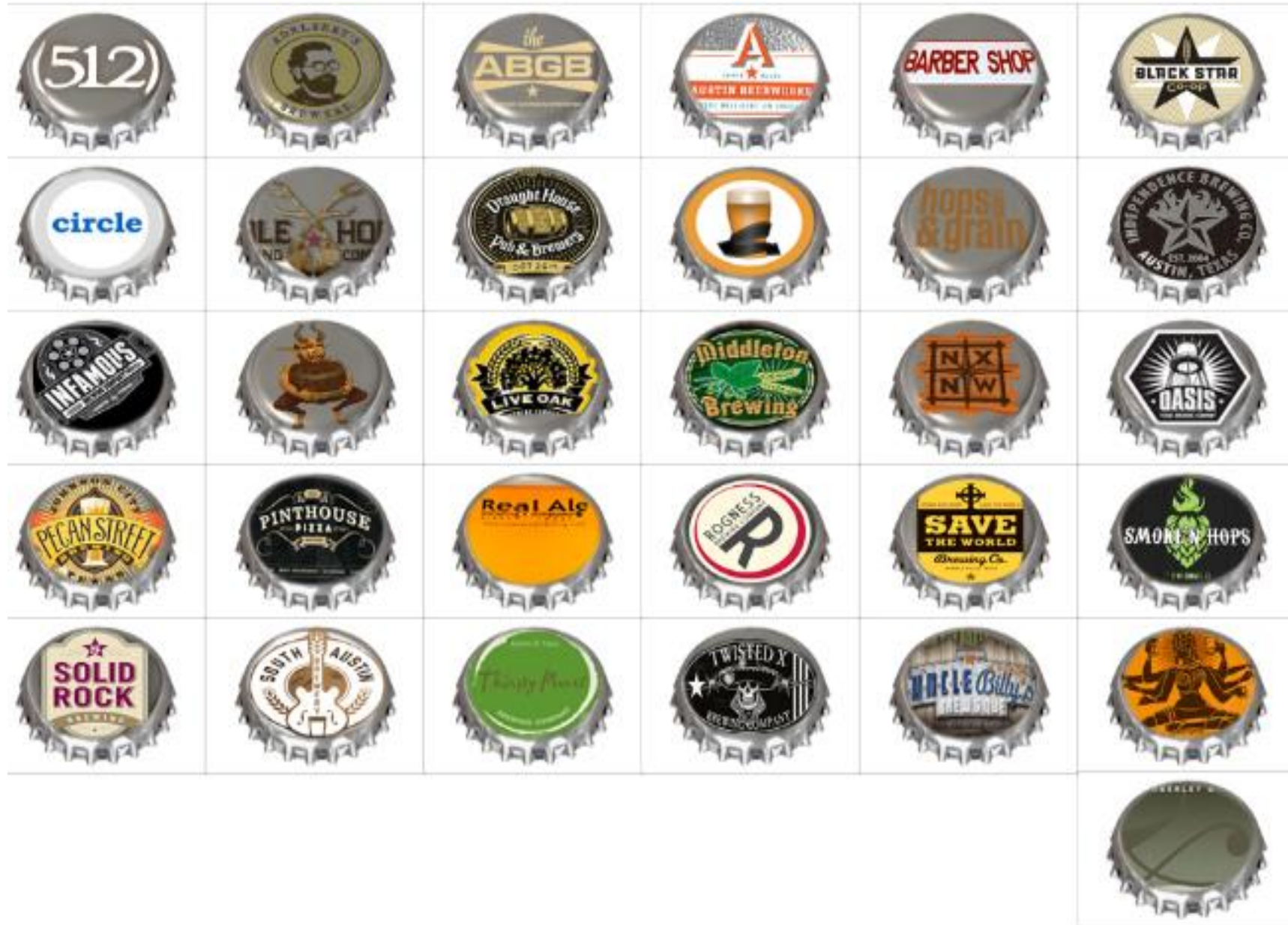


And the craft beer industry is growing fast



Source: Brewers Association

Austin Locals



A Partial List of Austin Breweries

(512) Brewing Company	Black Star Co-op Pub & Brewery
Adelbert's Brewery, LLC	Draught House Pub & Brewery
Austin Beerworks, LLC	Kamala Brewing at the Whip In
Circle Brewing Company	North by Northwest Restaurant and Brewery
Hops & Grain Brewing	Pinthouse Pizza
Independence Brewing Company	Uncle Billy's Brew & Que
Infamous Brewing Company	Bull Creek Brewing
Jester King Brewery	Last Stand Brewing Company
Live Oak Brewing Company	Zilker Brewing Company
South Austin Brewing Company	The Austin Beer Garden Brewing Company (ABGB)
Thirsty Planet Brewing Company	

Other Spirits Companies in Austin

Treaty Oak Distilling

Republic Tequila

Paula's Texas Spirits

Garrison Brothers Distillery

Dripping Springs Vodka

Deep Eddy Vodka/Deep Eddy Sweet Tea Vodka

Dulce Vida Organic Tequila

Tito's Vodka

Texas Saké Company

The Brewing Industry is Putting Water on Its Radar Screen

To Make Beer, MillerCoors Helps Farmers Save Water
Jul 2, 2012 by [Scott](#)

Beer industry raises a glass towards cutting water consumption

By [Bruce Kennedy](#)
Published August 17, 2012

Brewing Features

CONSERVING WATER: THE FIGHT TO PROTECT BEER'S MAIN INGREDIENT

All About Beer Magazine - Volume 34, Issue 6
November 24, 2013

Breweries across the world strive to decrease beer's water footprint



AND YES THERE IS A

TEXAS DISTILLED SPIRITS ASSOCIATION

Example from MillerCoors

Millercoors Sets New Record For Water Conservation

MillerCoors is using less and less water to brew its beers, according to the 2013 MillerCoors Sustainability Report released today. The nation's second-largest brewer decreased water use by 6.1 percent to a record low 3.82 barrels in 2012. By comparison, some U.S. breweries use as much as 6.62 barrels of water to produce a single barrel of beer^[1].

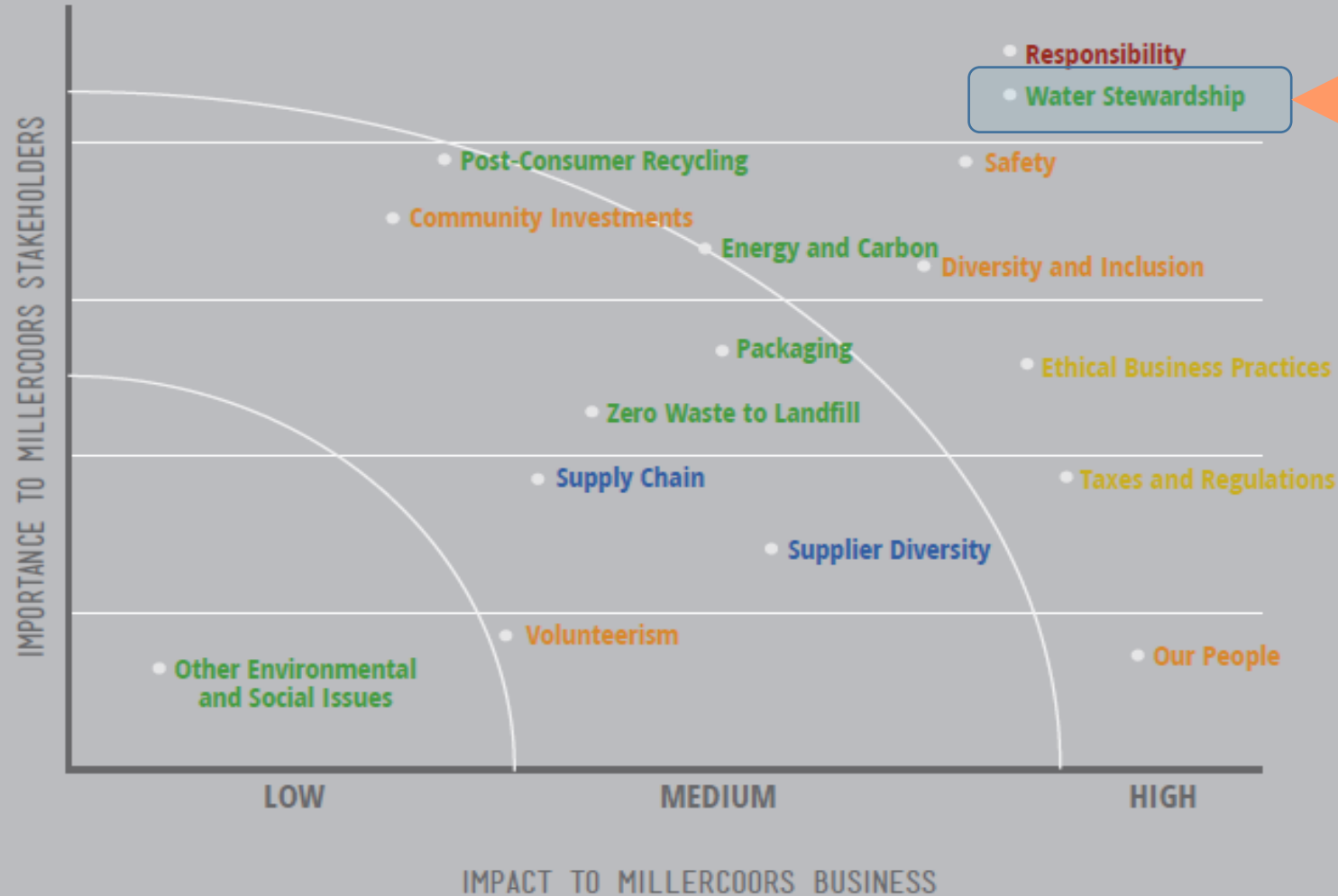
MillerCoors Sets New Record for Water, Energy Conservation

MillerCoors water and energy use reached record lows last year, according to the 2014 MillerCoors Sustainability Report, Great Beer, Great Responsibility, released today. The nation's second-largest brewer is now using an average of 3.48 barrels of water to brew one barrel of beer, a 9.1 percent decrease from 2012. For comparison, some U.S. breweries use more than 6 barrels of water to produce a single barrel of beer. MillerCoors decreased its energy use by 15.6 percent from 2012, saving 1.6 billion mega joules of energy over the course of 2013. With these reductions and others, MillerCoors surpassed all the environmental stewardship goals it set out to achieve by 2015.

The Fort Worth plant now uses 3.2 barrels of water to create one barrel of beer, a 9 percent reduction from three years ago

MATERIALITY MAP

WE REVIEW OUR MATERIALITY ASSESSMENT EVERY THREE YEARS. THE NEXT REVIEW WILL OCCUR IN 2014.



Texas Water Foundation Tour of MillerCoors Brewery in Fort Worth, Texas

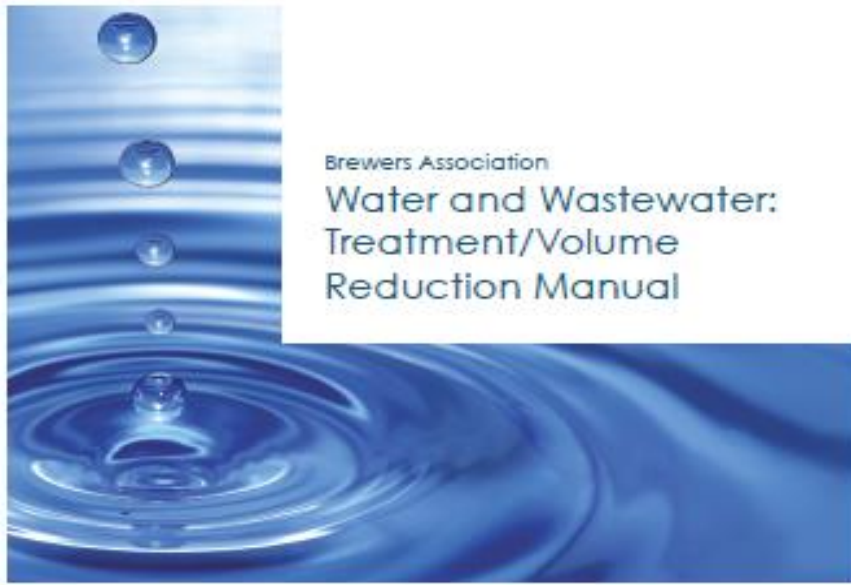


The graphic features a blue background with a stylized city skyline. In the top left, a red postcard reads "Greetings from FORT WORTH Texas". The words "SAVE THE DATE" are written in large, 3D, white letters with red outlines. A red classic car is driving on the right side of the graphic. Below the graphic, the Texas Water Foundation logo is shown next to the text "partners with" and the MillerCoors logo. The main text of the announcement is in a black, slightly informal font, and the contact information is at the bottom.

TEXAS WATER FOUNDATION partners with MillerCoors

Please save the date, Thursday, October 23, 2014 to go *'On The Road Again'* with the TWF! We'll travel to the Metroplex area for an informative visit to the MillerCoors Brewery for a tour of their Award-Winning Water & Land Conservation/Sustainability Programs! More exciting details and your invitation to follow soon!

For more information or early RSVP, email TWF@texaswater.org



Examples from Restaurant and Hotel Industries



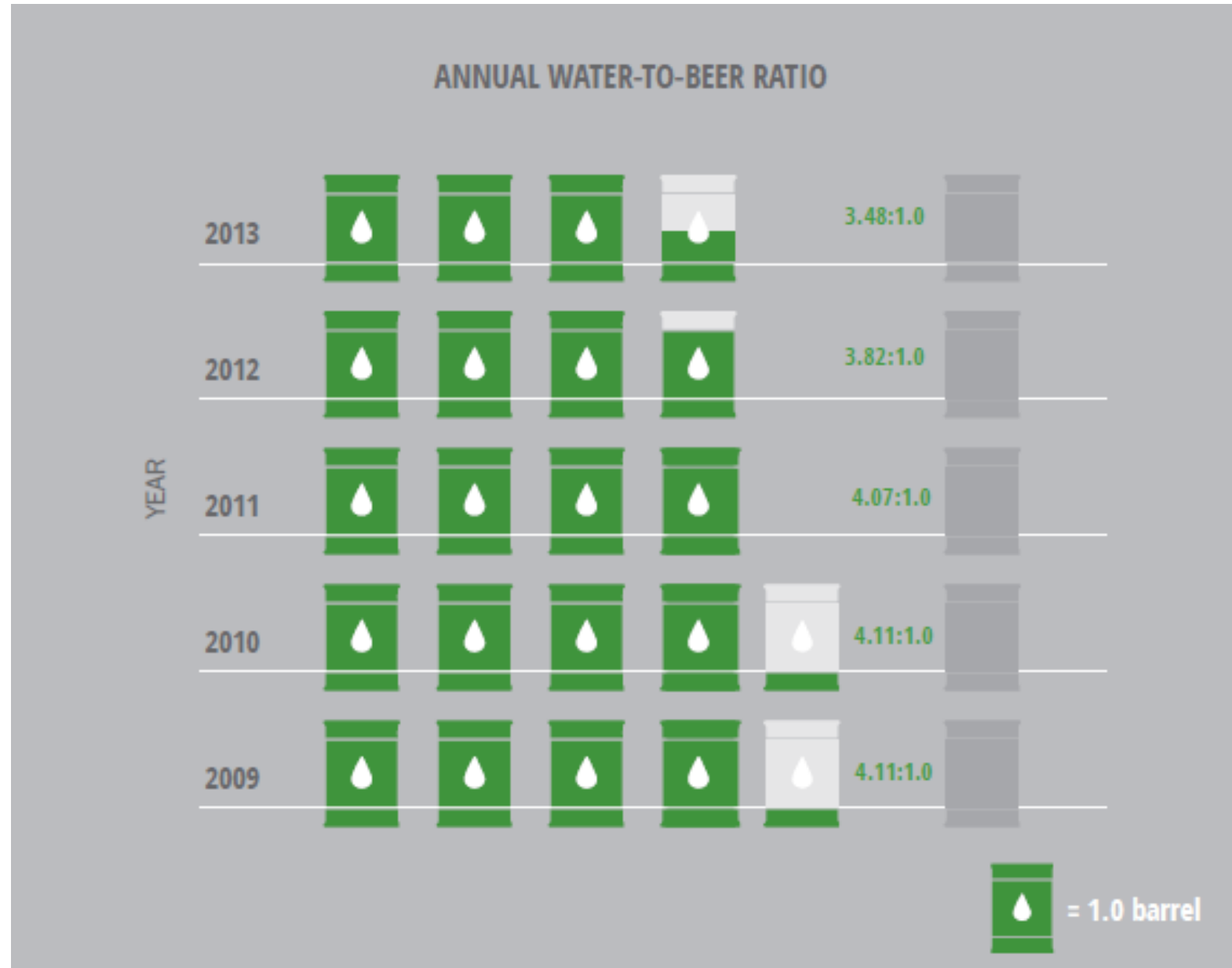
Hilton Family of Hotels

Water: a number of initiatives, especially in the back of the house

- A large amount of a hotel's water consumption comes from laundry and housekeeping. Hilton has worked with its suppliers to identify sustainable solutions for laundry and housekeeping practices. This includes improving laundering technologies (saving up to 45% of water and 43% of energy while extending linen life by up to 40%). Further, Hilton has developed sustainable housekeeping supplies that can **reduce the amount of water used in cleaning processes by up to 30%**.
- Hilton has identified **new types of towels that are lighter weight** and more durable than standard towels. This means that hotels can launder more towels per load and the product will last longer than standard towels, thereby **requiring fewer loads of laundry** and producing less waste over time (and saving money!).
- Many hotels have invested significant effort **to engage employees** in reducing water consumption.
- Installation of **water restrictors and displacement devices** has been a common practice for hotels in recent years.
- A number of properties are implementing innovative solutions for **water reuse such as rain capture and other water-efficient technologies such as smart irrigation**.

Metering & benchmarking

From the MillerCoors Sustainability Report

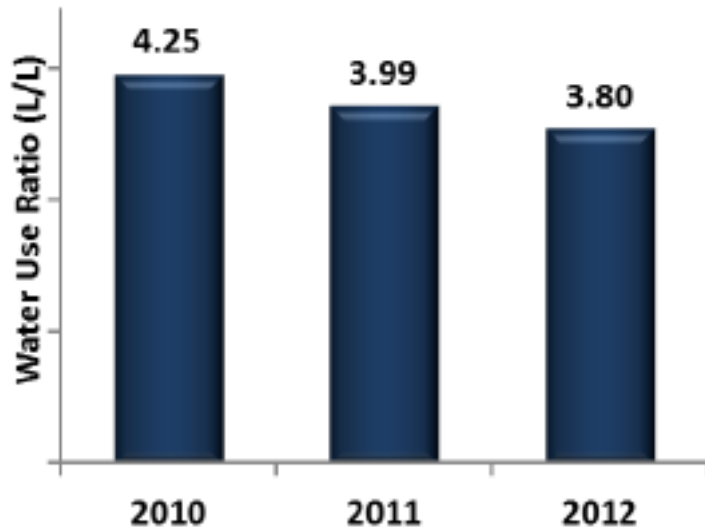


Beverage Industry Environmental Roundtable

BIER

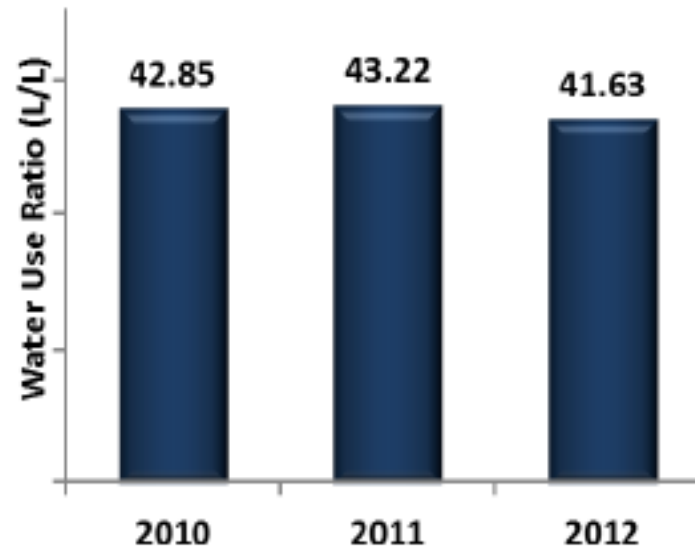
**Figure 10: Brewery (Beer Only)
Water Use Ratio Performance**

N=318
Range (2012) - 3.12 - 6.18 L/L
Improvement = 11%



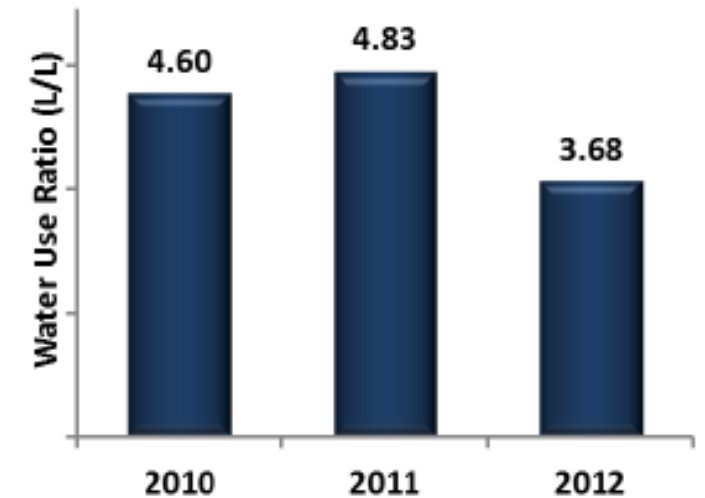
**Figure 13: Distillery Water Use Ratio
Performance**

N=84
Range (2012) - 13.27 - 129.62 L/L
Improvement = 3%

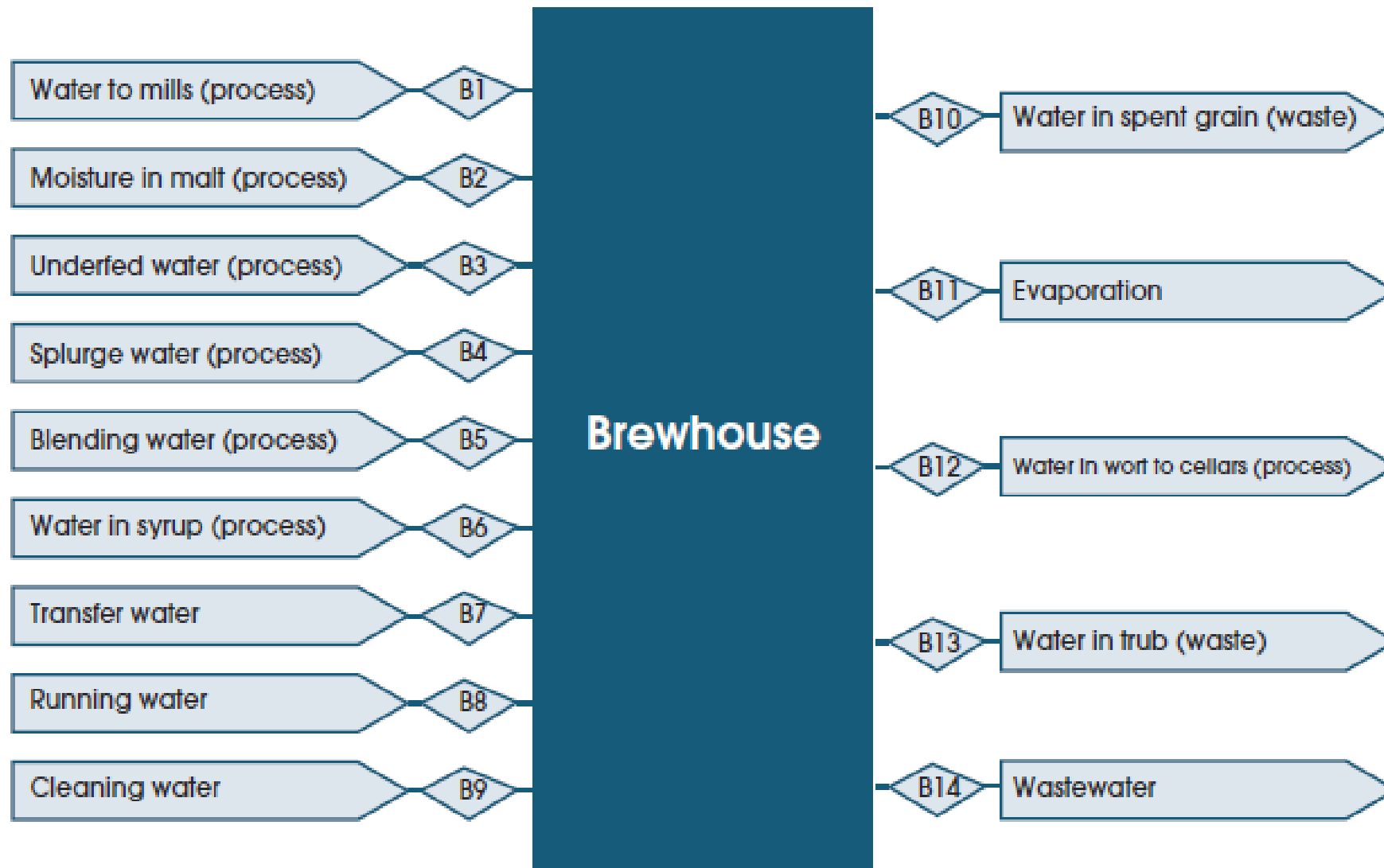


**Figure 16: Winery Water Use Ratio
Performance**

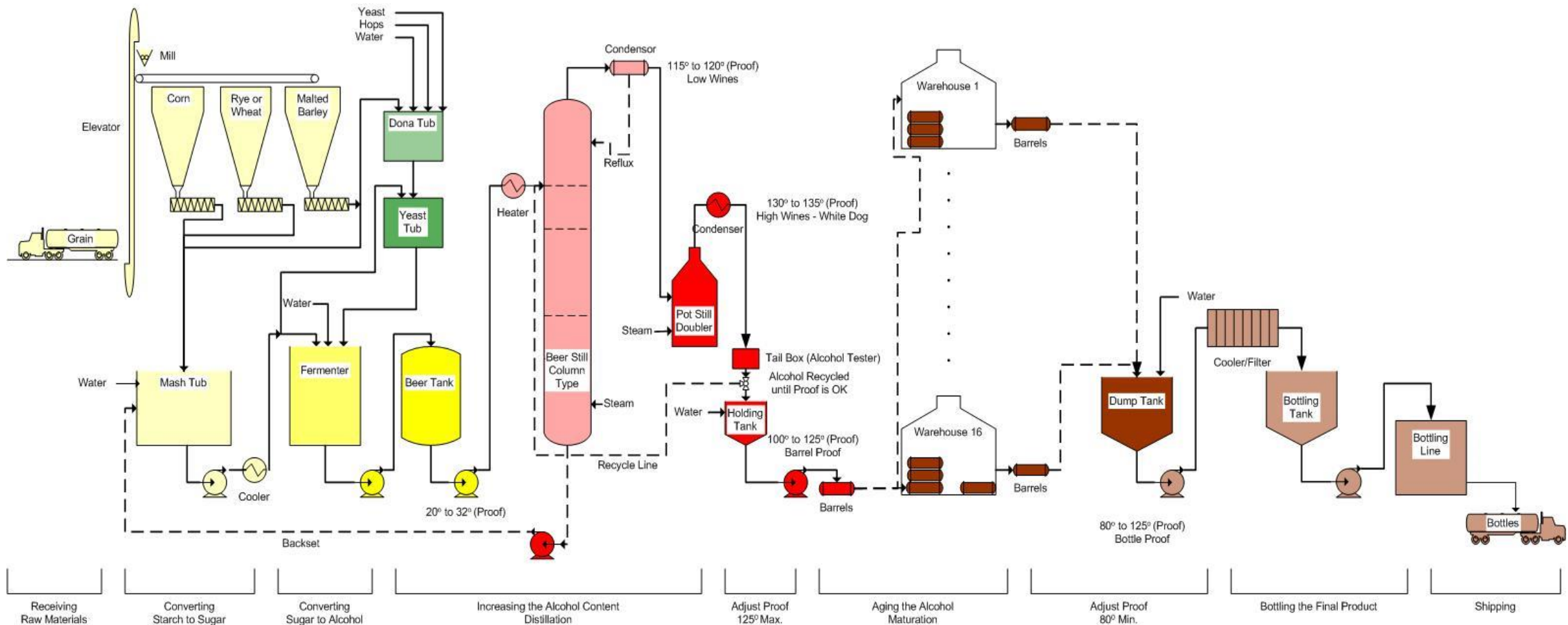
N=25
Range (2012) - 2.17 - 14.61 L/L
Improvement = 20%



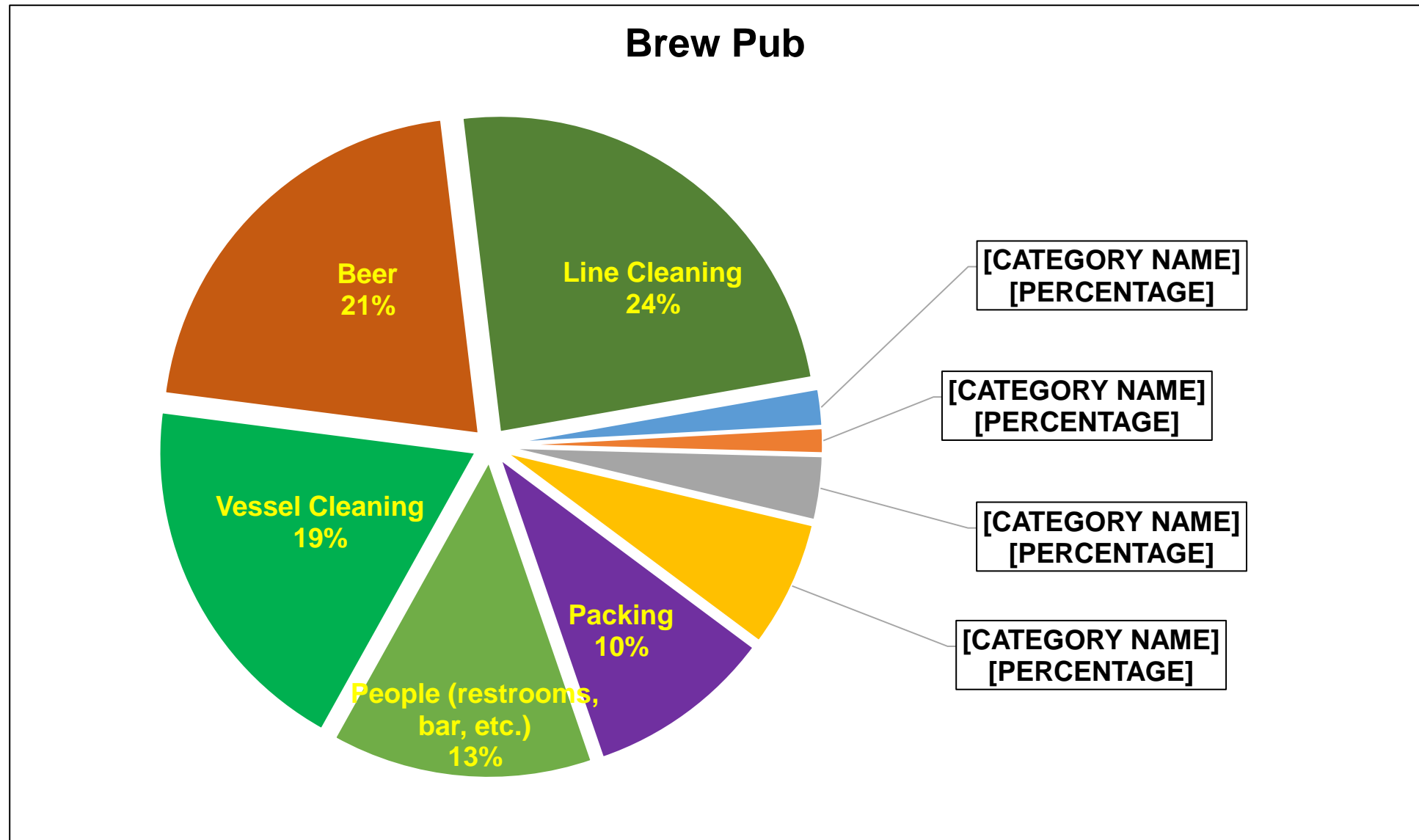
Brewing Water And Wastewater Sources



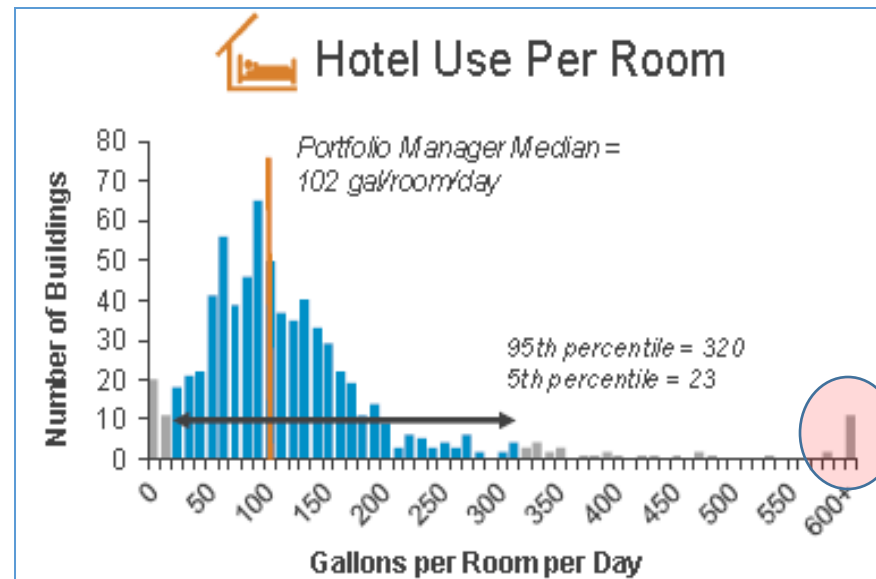
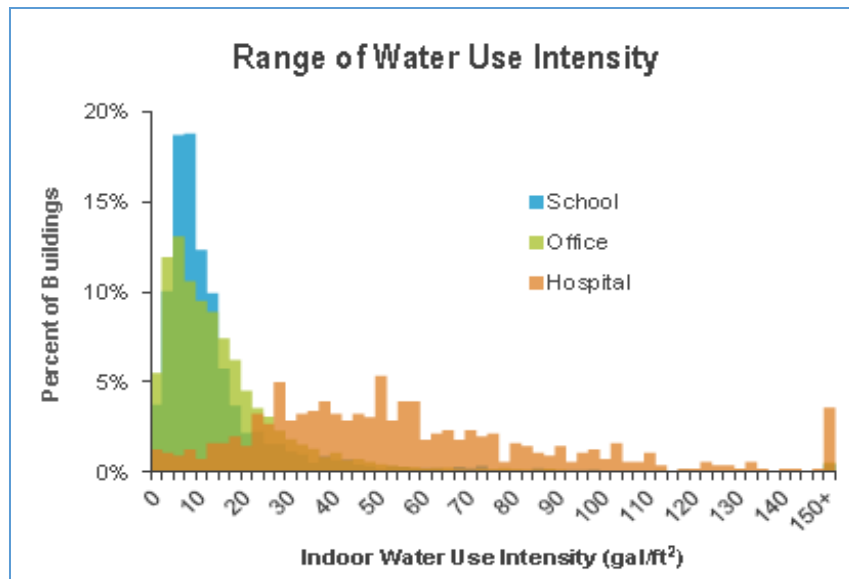
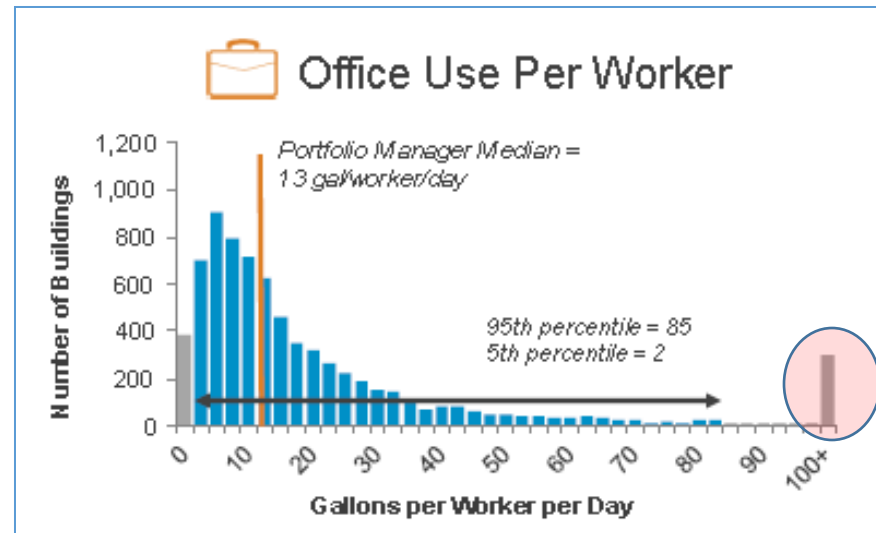
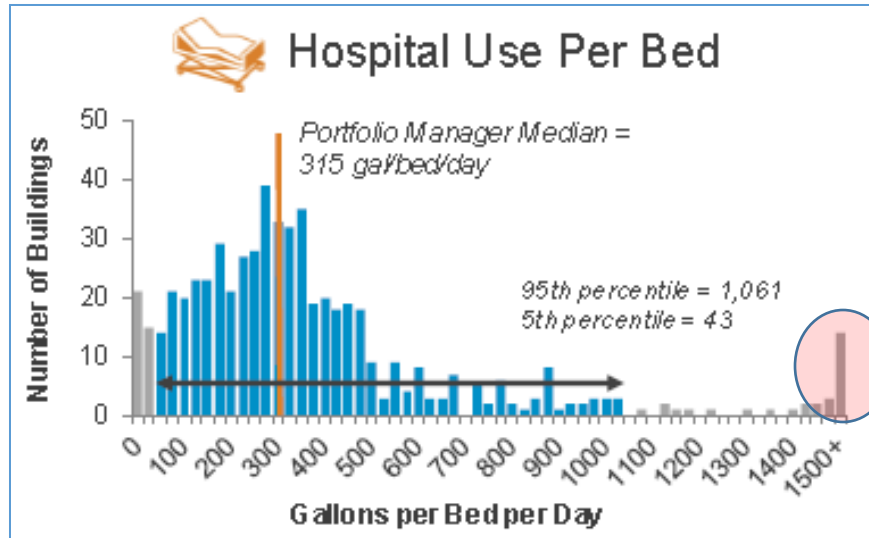
Do you have a process diagram?

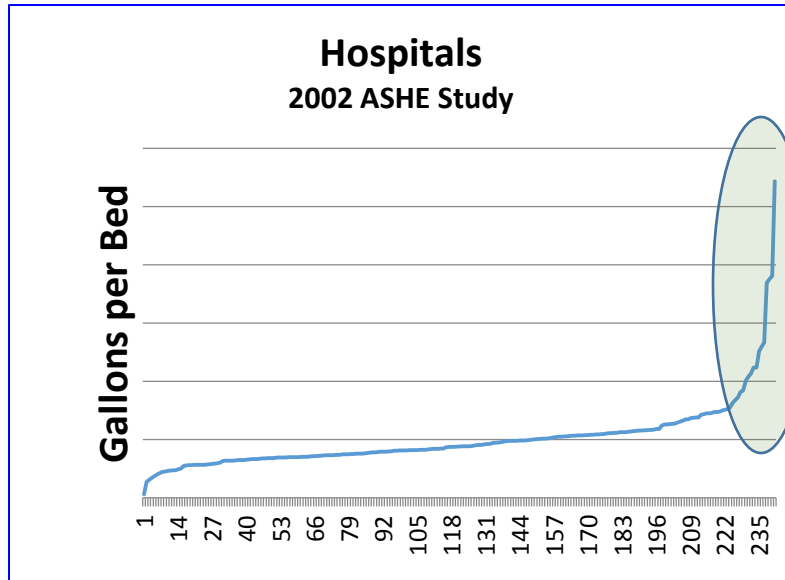


Examples of Water Balances

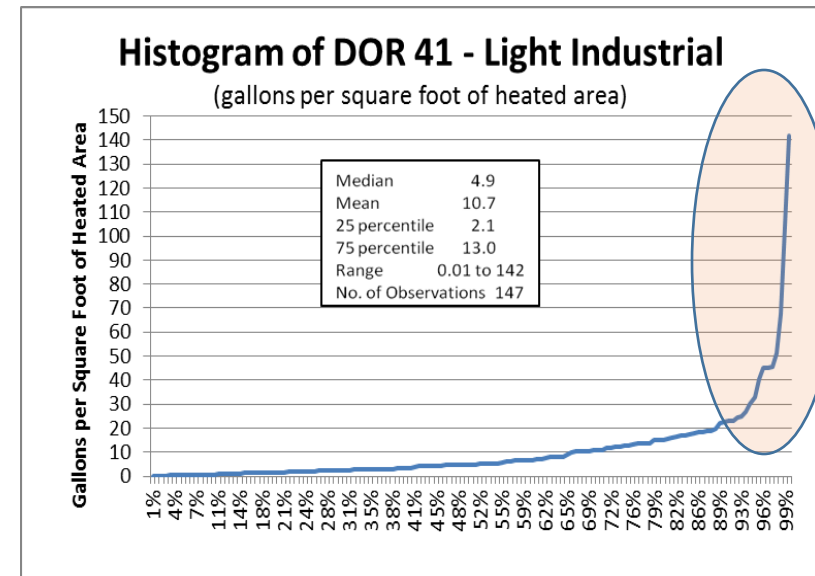
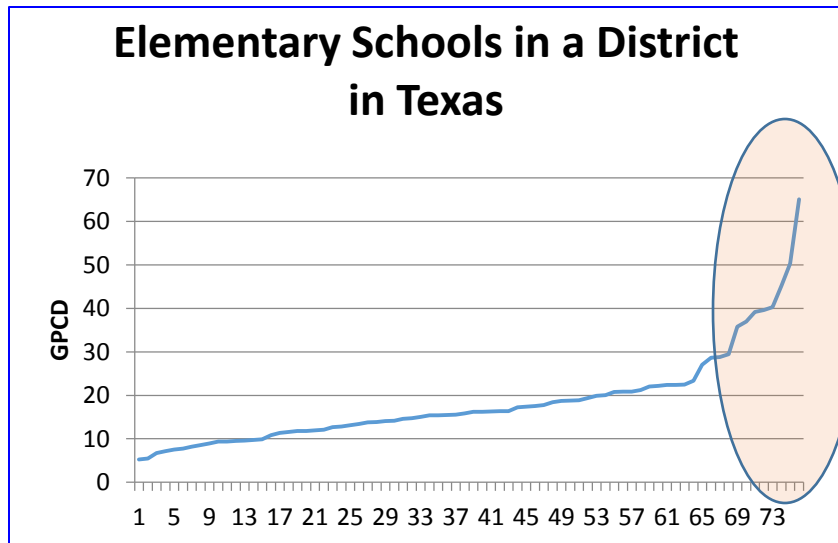


EPA Portfolio Manager Data by Type of User 2012

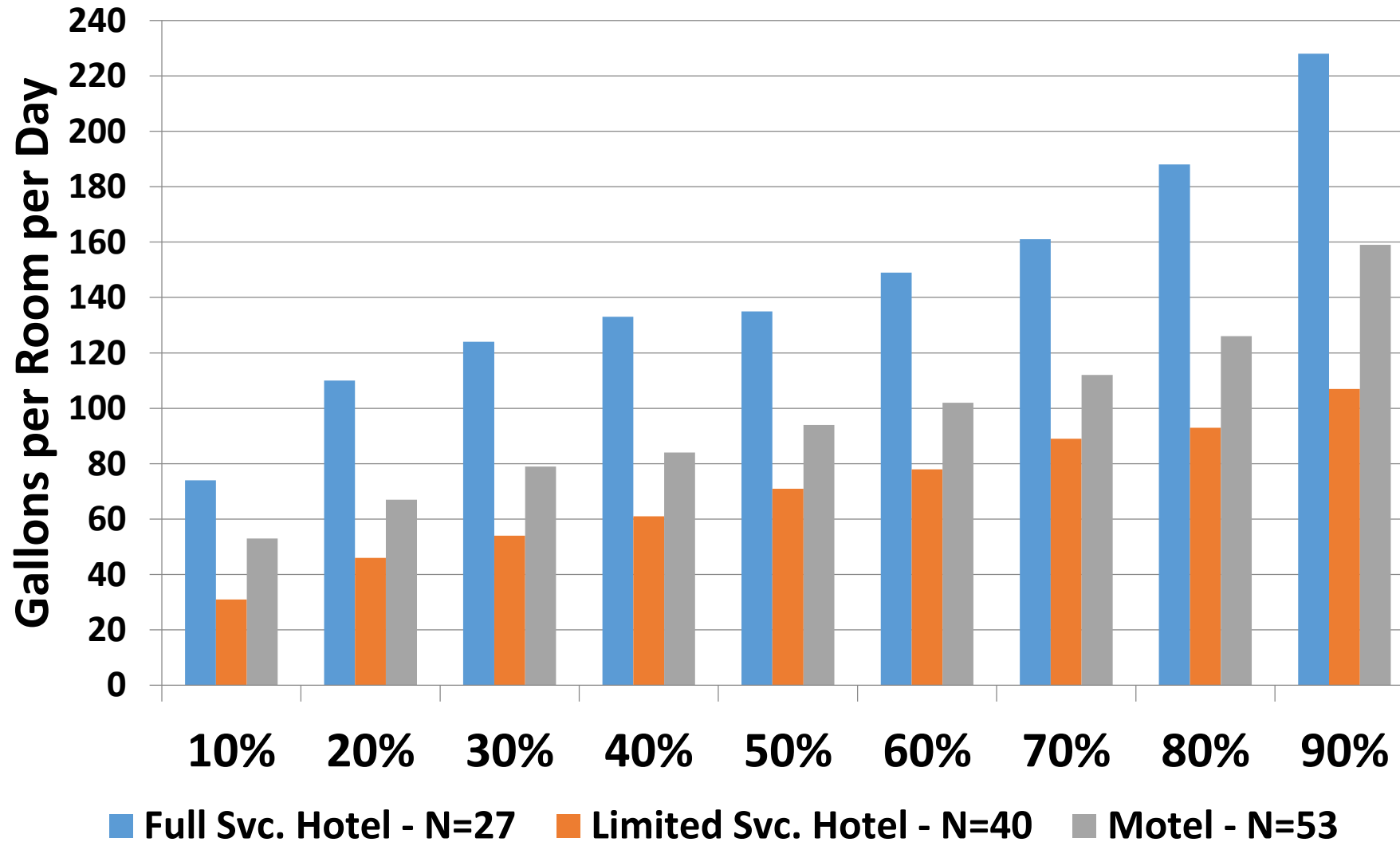




**Do You see
a Pattern
Here?**

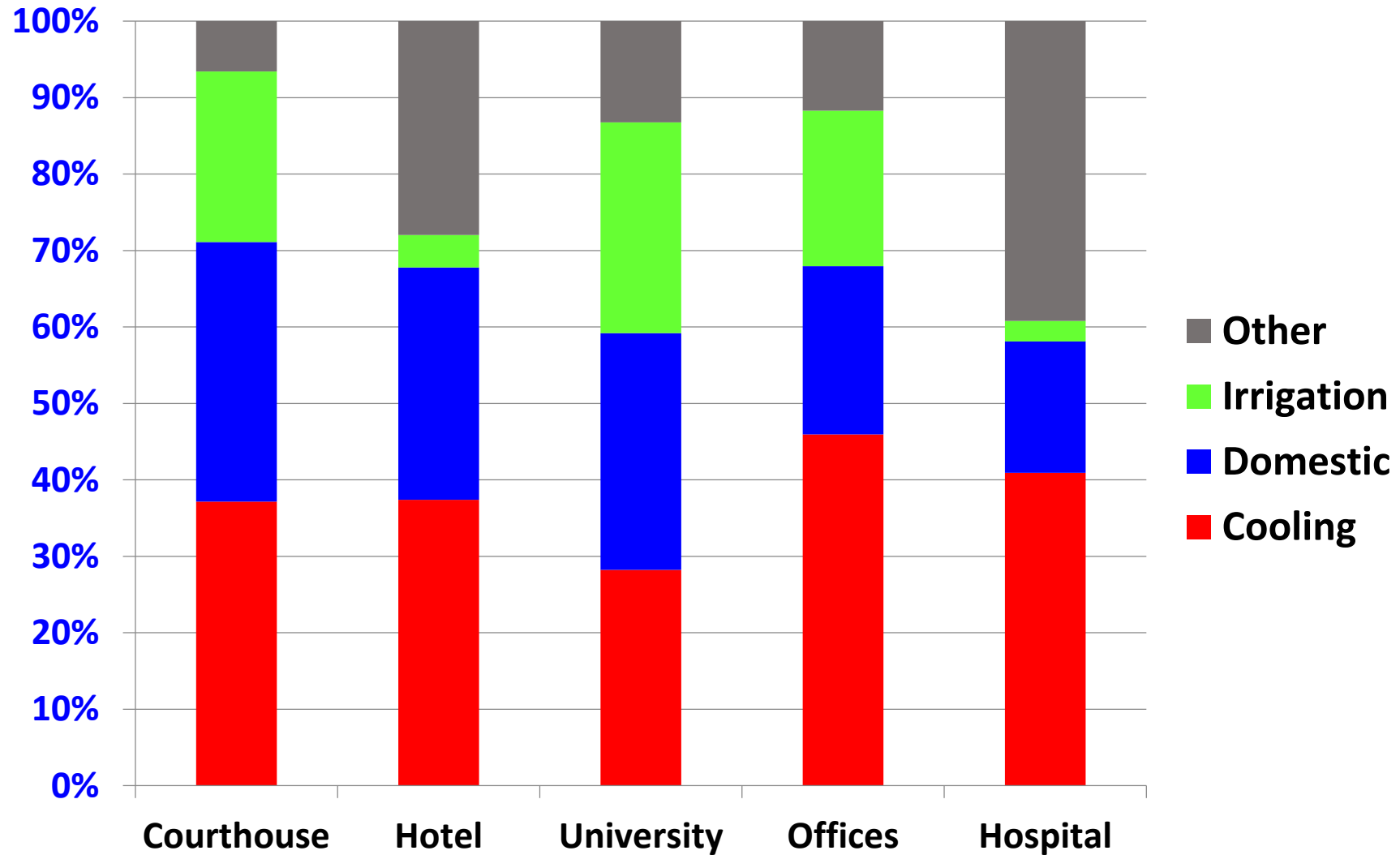


Analysis of Gallons per Room for Hotels in Austin, Texas FY 2011

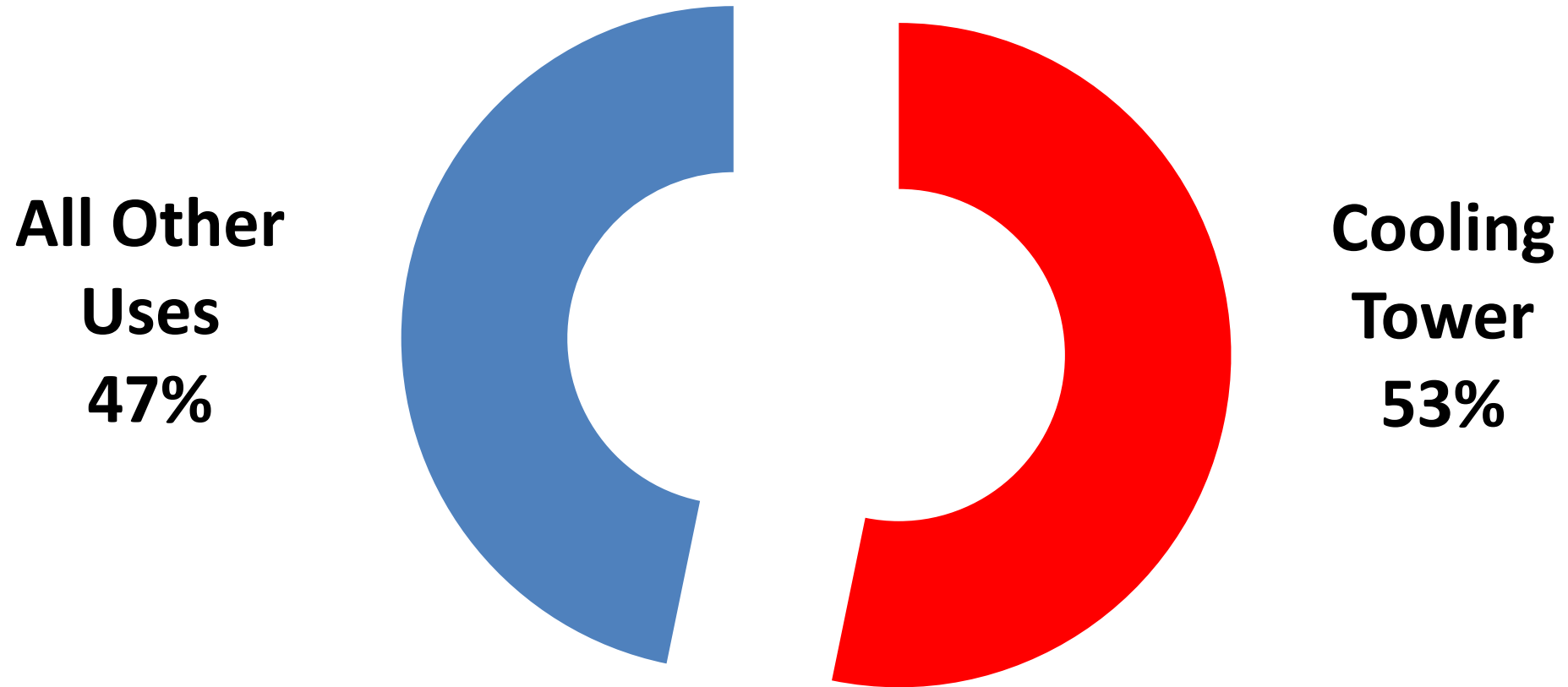


Summary of Audits of 30 Large Facilities with Cooling Towers in Downtown Fort Worth Texas

Water Management , Inc.

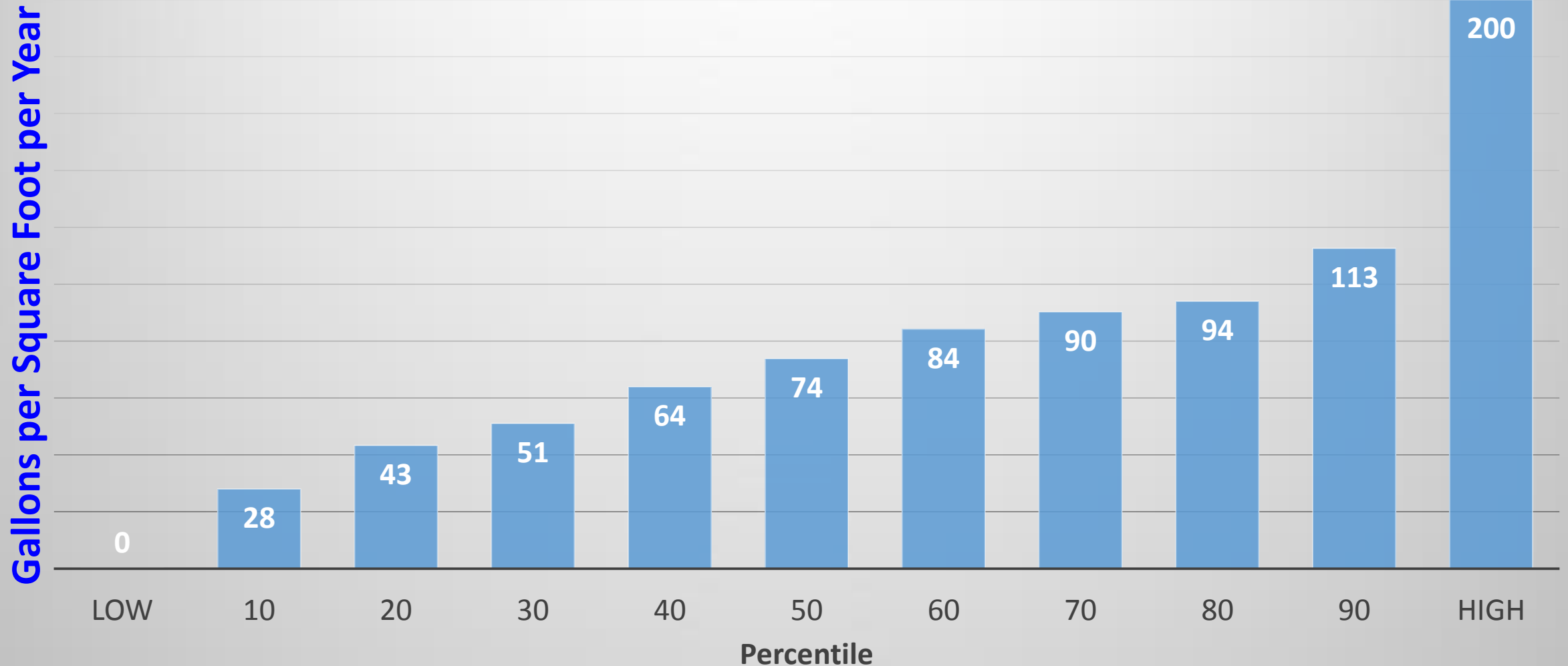


Eleven Office Buildings in Austin, Texas



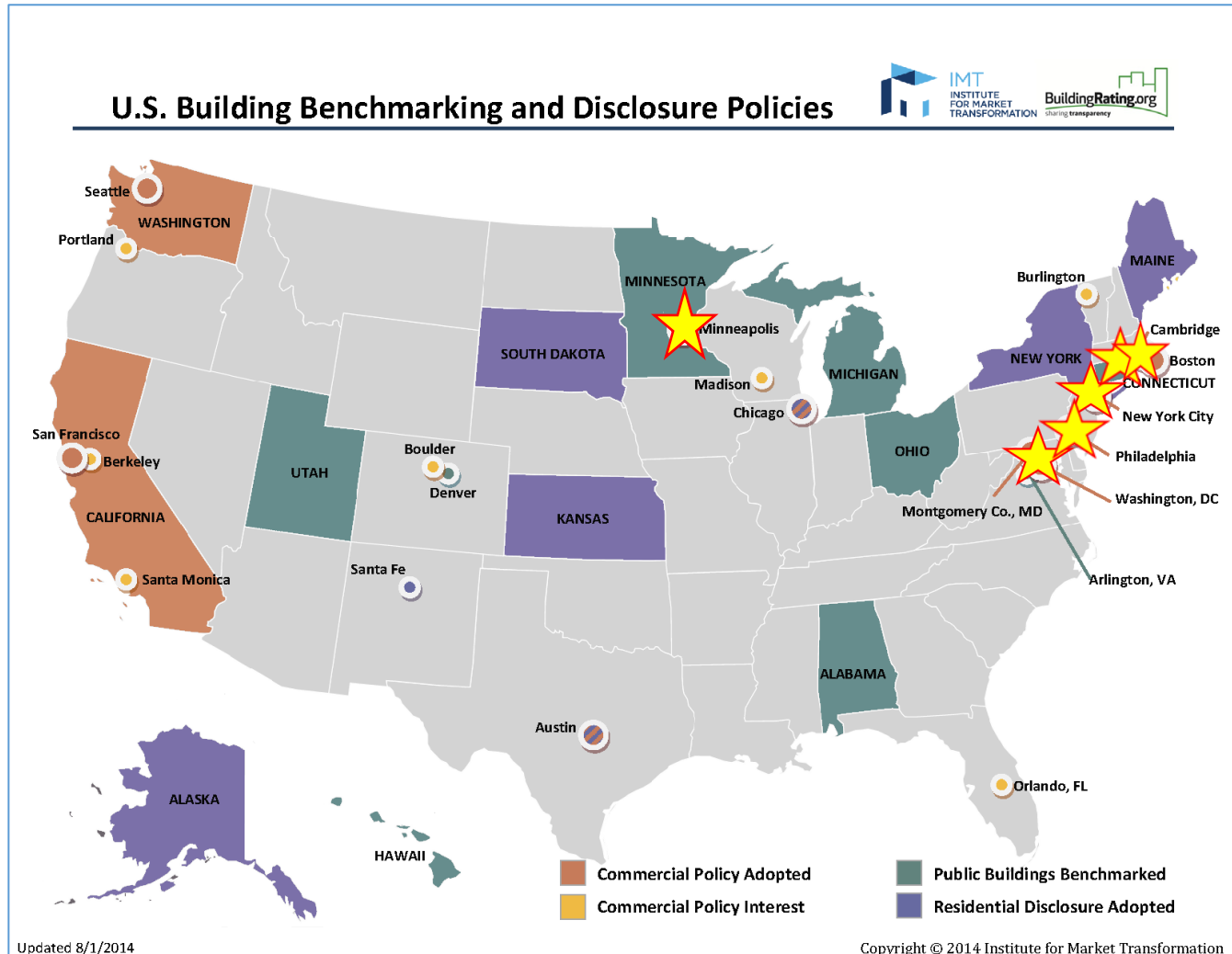
66 New York Hotels in 2013

AMI – Portfolio Manager Data Base



Benchmarking Energy and Water Use In Commercial Buildings

★ The Star indicates benchmarking water use.



SB 700 requires that the **Texas** State Energy Conservation Office (SECO) to benchmark energy and **water** use in State Facilities and State supported Institutions of Higher Education.

**If you don't
measure it, you
can't manage it!**



Progress takes many forms

The Seven Questions

How much?

Where?

When?

How?

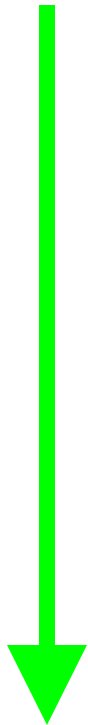
Who?

Why?

What other way?

Ranking of Possible Measures

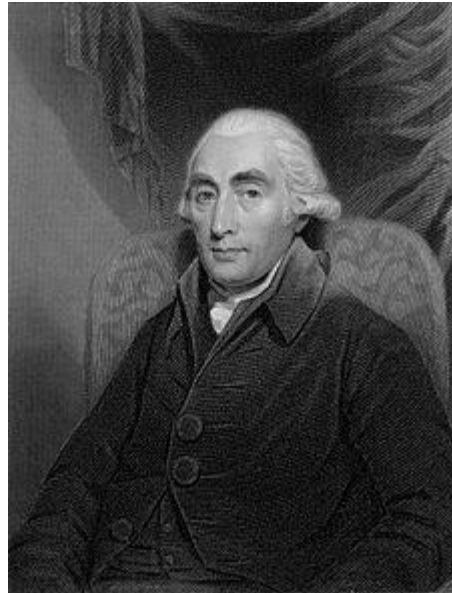
Good



Best

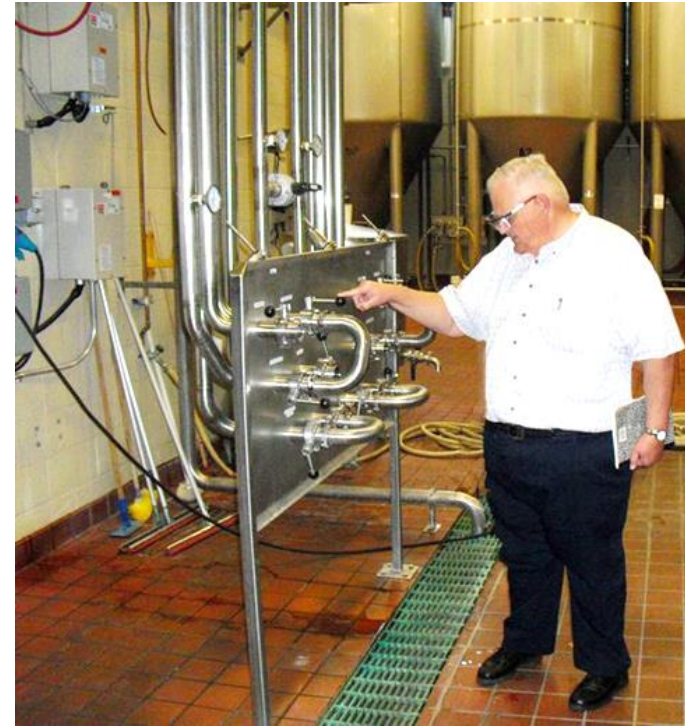
1. Adjust equipment
2. Modify equipment or install water saving devices
3. Replace with more efficient equipment
4. Water reuse/recycle
5. Change to waterless process

Joseph Black, Scotch Whiskey and Thermodynamics



**So the next time you lift a glass of Scotland's
Finest, remember Joseph Black, the frugal
distillers and how they advanced the science
of thermodynamics.**

Cleaning Hoses, Tanks, Kegs and Pipes

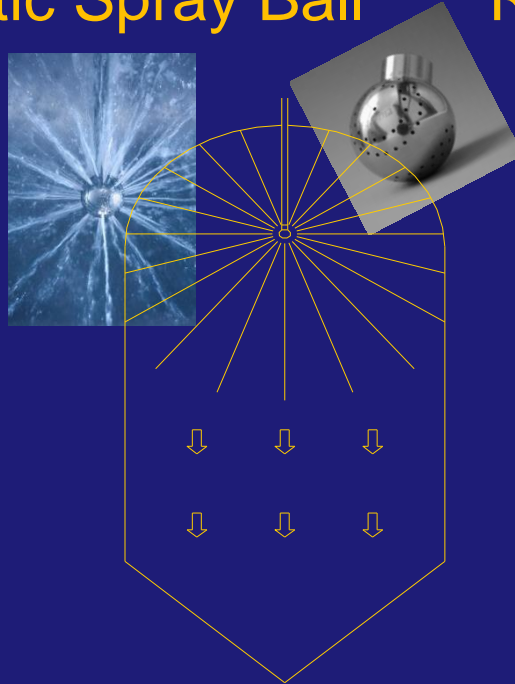


Recirculating Clean in Place Systems

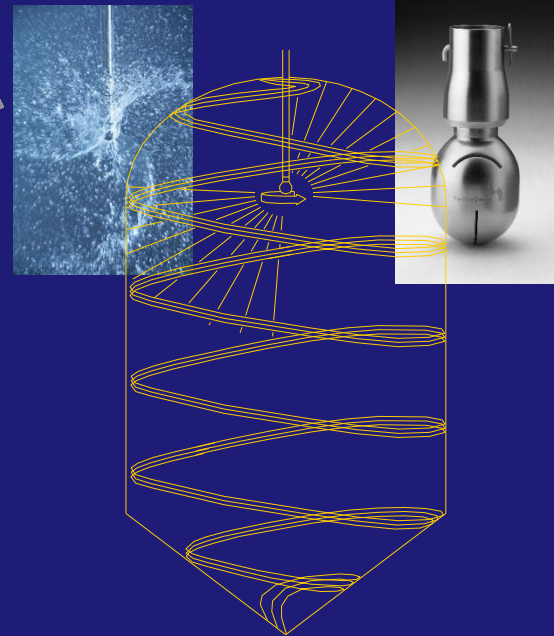




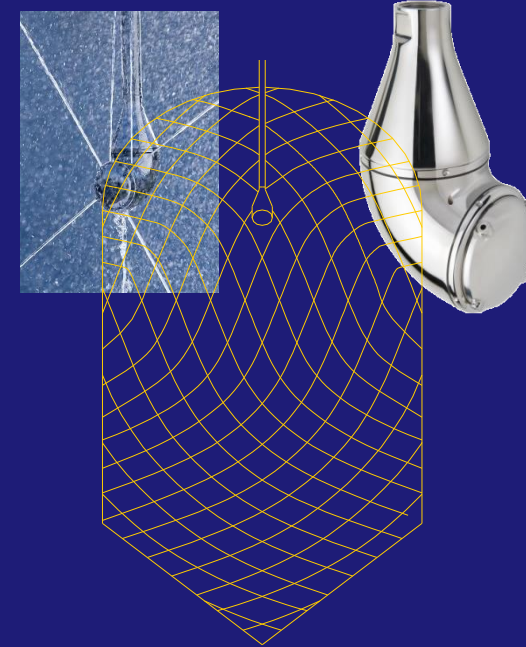
Static Spray Ball



Rotary Spray Head



Rotary Jet Head



Coverage:

Means: Cascading

Effect: Partial

Action: Low

% Resources used 100%

Swirling fan

Partial to full

Medium

70-75%

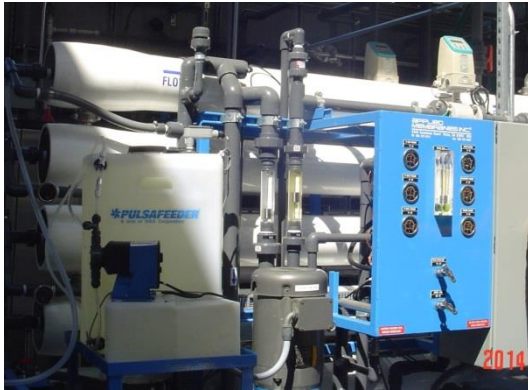
Index Pattern

Full

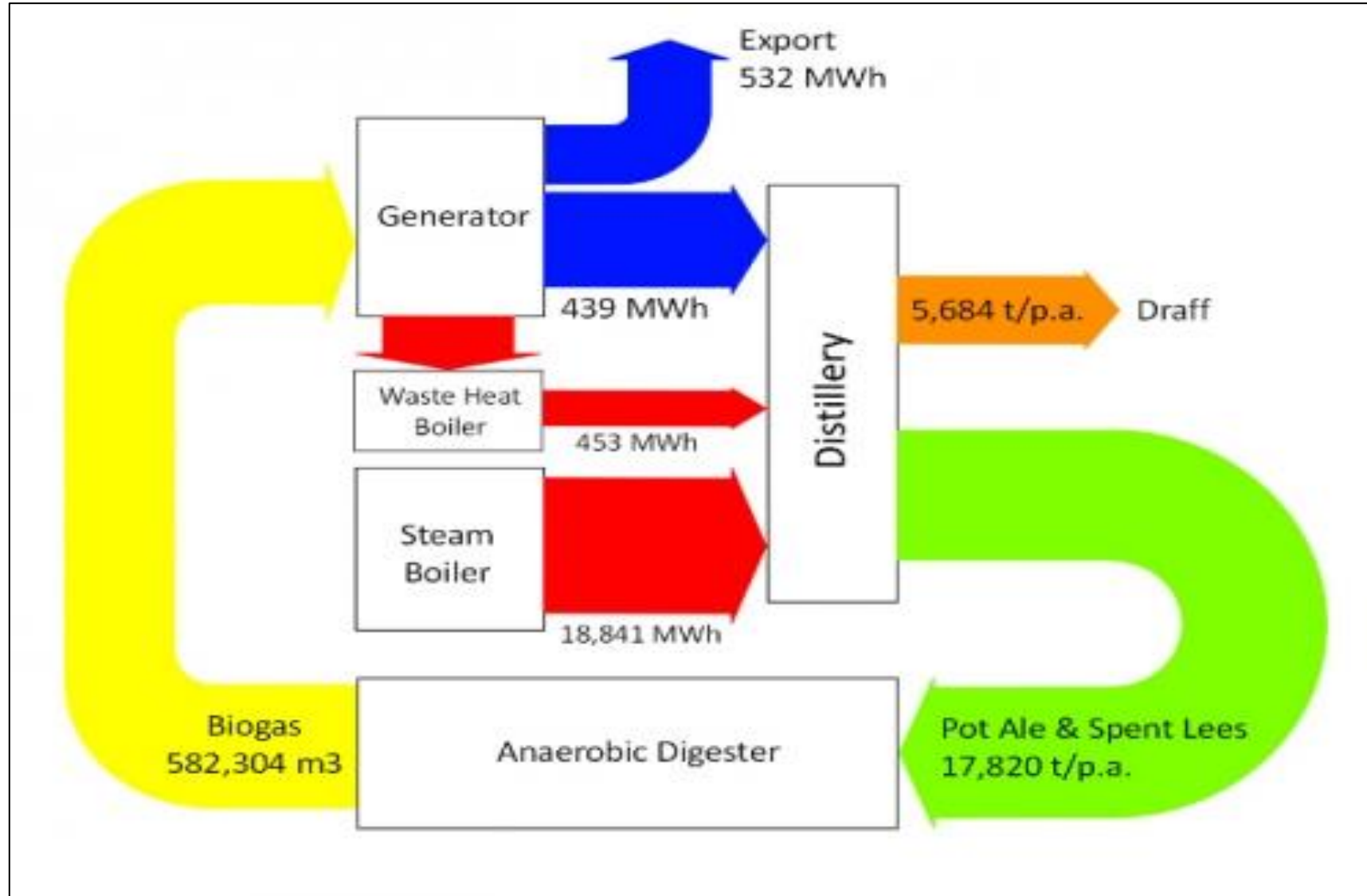
High

<50% in most cases

Water Reuse Can Take Several Forms



Energy is in the game too.



Many uses are the same

Many are also Restaurants



Cooling Towers at a Scotch Distillery and a Brewery



Keeping it Cold



Sources of Assistance

Texas Tax Incentives

Property Tax Exemptions

Tax Relief for Pollution-Control Properties – can be used to exempt projects that reduce pollution. Water conservation projects could include all forms of on-site reuse, conservation practices that reduce wastewater volumes and similar activities subject to TCEQ approval. The exemption is filed through the local property tax office that must agree to the exemption.

<http://www.tceq.state.tx.us/airquality/taxrelief>

Sales Tax Exemption

The Texas Comptrollers Office exempts sales tax on the purchase of materials and equipment for rainwater harvesting, water recycling and reuse and certain limited types of water saving devices.

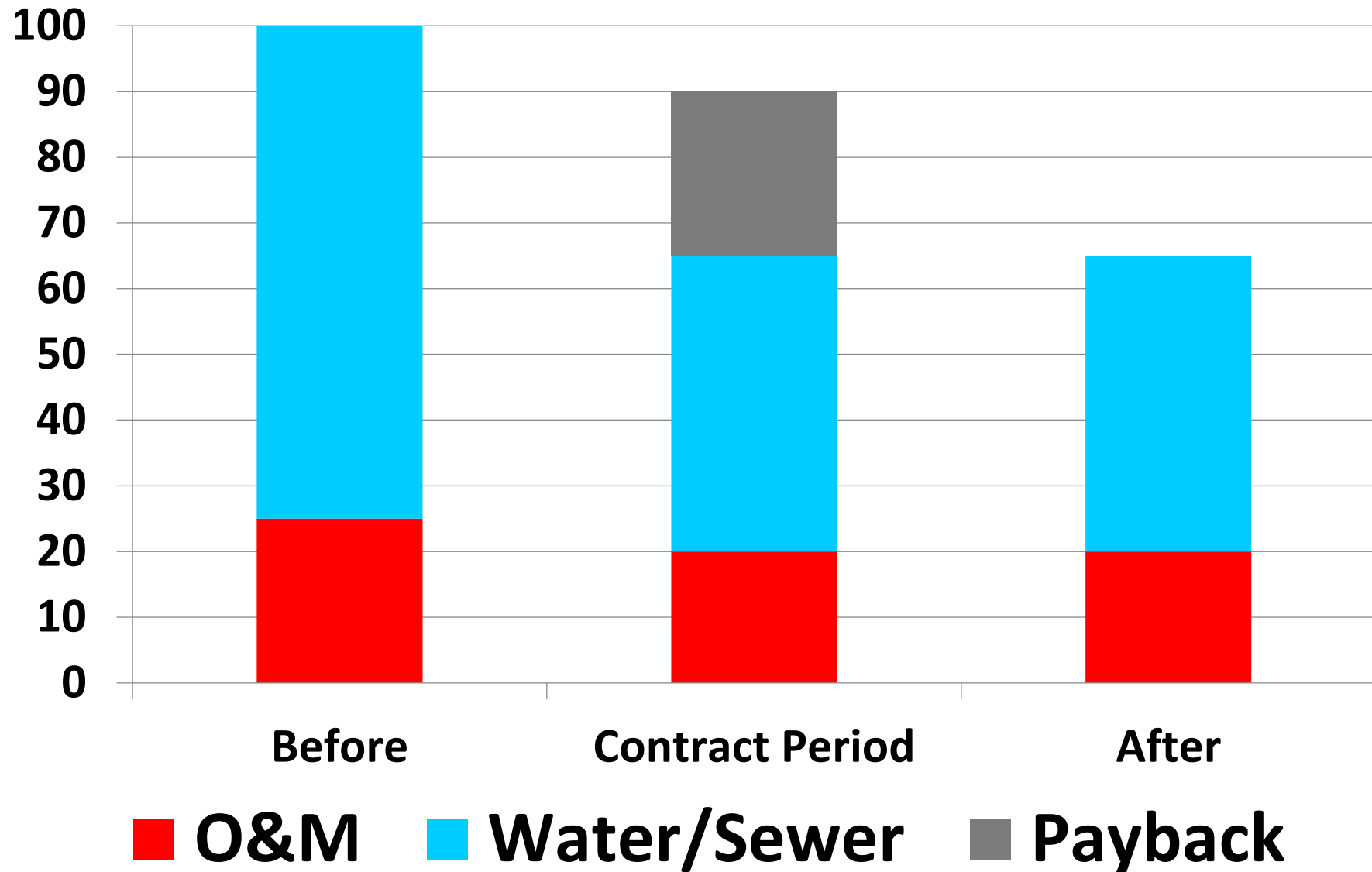
<https://www.twdb.texas.gov/conservation/municipal/commercial-institutional/doc/SalesTaxExemption.pdf>



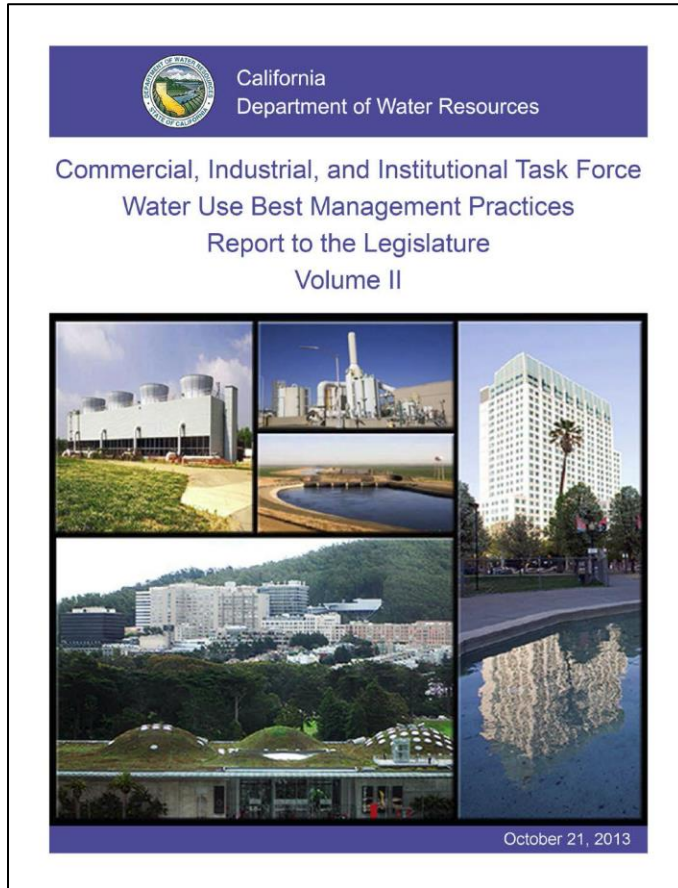
What Full Service WASCO's Offer

- Detailed auditing of ALL water uses
- Water and sewer use and cost analysis
- Analysis of energy savings associated with water conservation
- Product and system recommendations
- Turnkey pricing
- Implementation (design-build)
- Financing
- Measurement and verification of savings

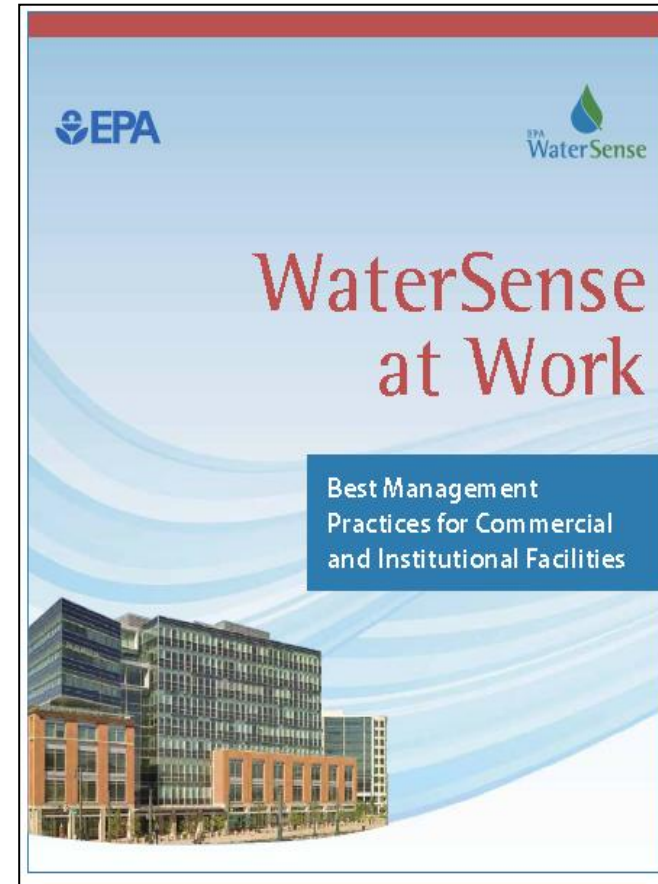
Performance Contracting



Two Guidebooks You Need to Get



http://www.water.ca.gov/wateruseefficiency/sb7/committees/urban/docs/ROUTING_Volume_II%20CII_TF_Report_12_16_13.pdf



<http://www.epa.gov/watersense/commercial/bmps.html>

Water Management, Inc. Locations

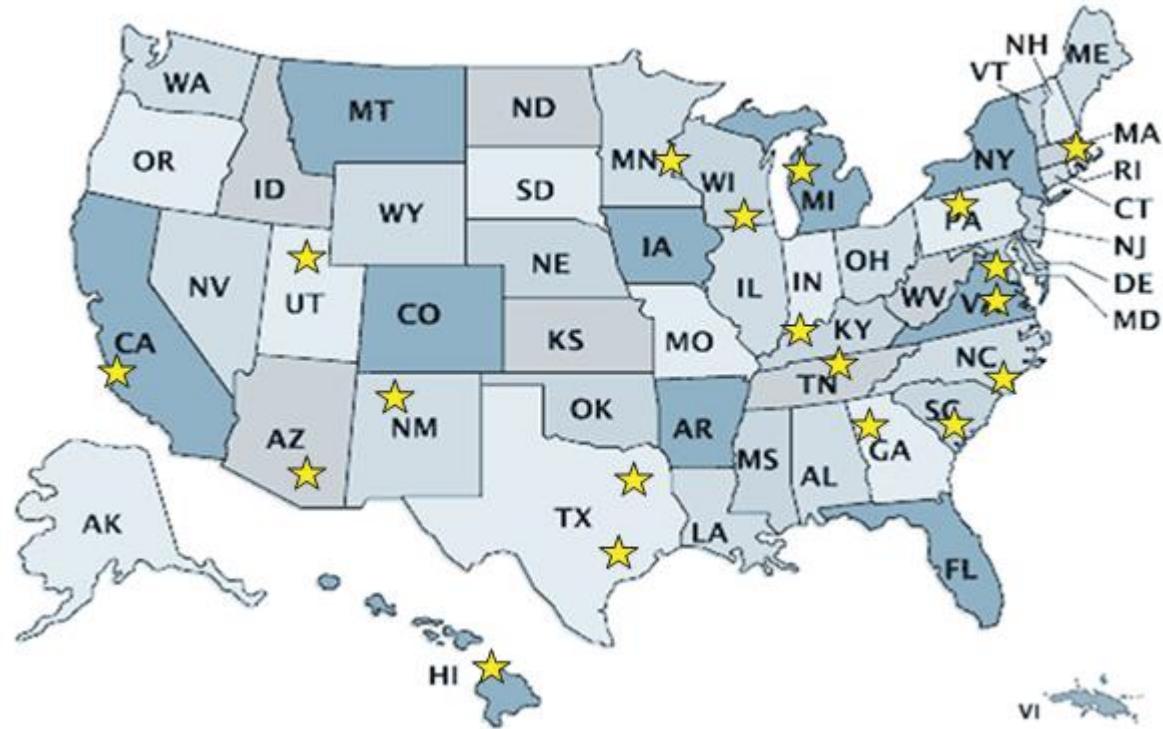
Headquarters

117 Clermont Avenue
Alexandria, VA 22304
703-370-9070 (p) 703-370-9179 (f)
Toll Free: 800-394-5325

Dallas/Fort Worth

Office

1201 N. Watson Rd.
Arlington, TX 76006
817-652-2640 (p)



Long-term trends in consumer prices (CPI) for utilities

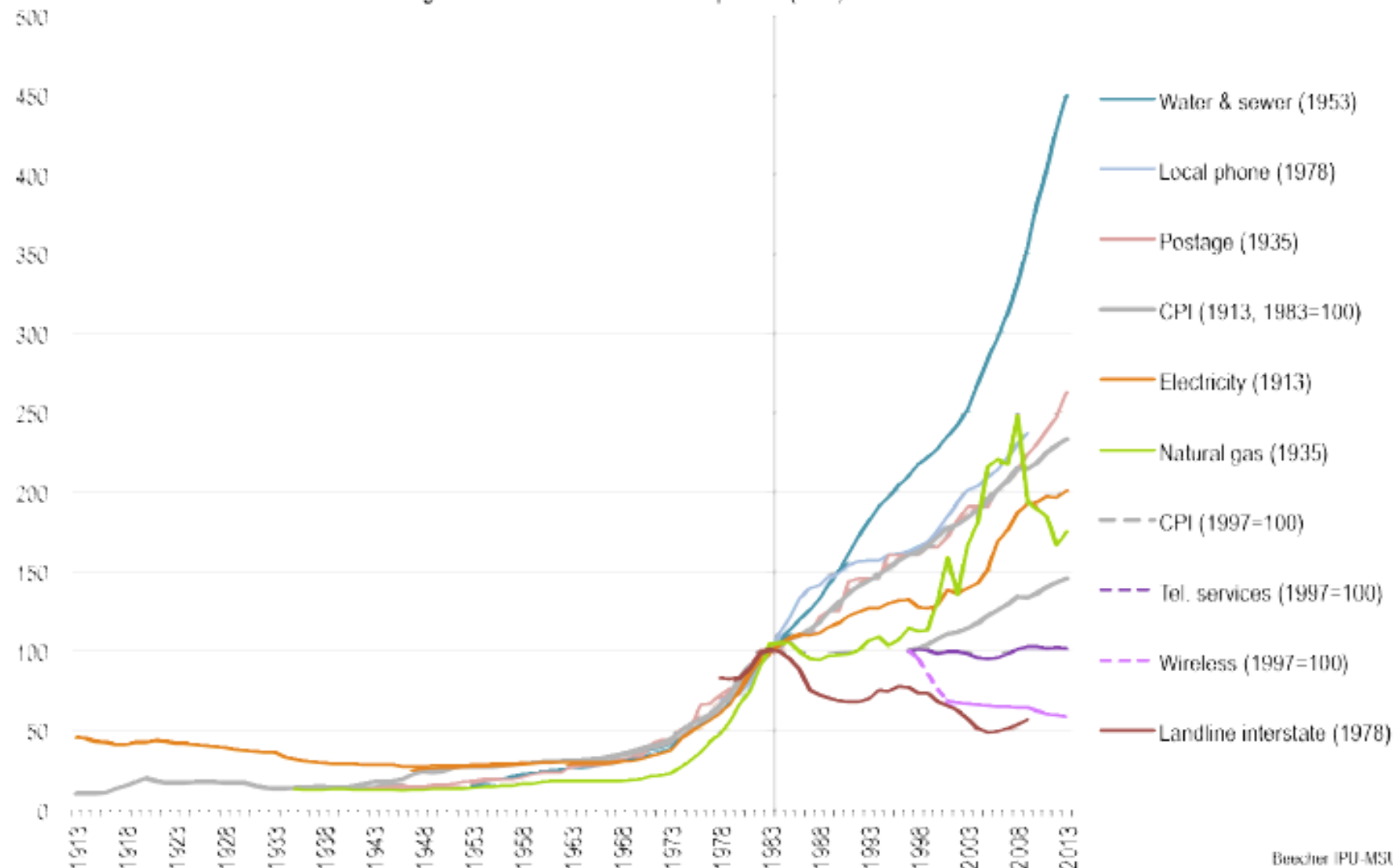
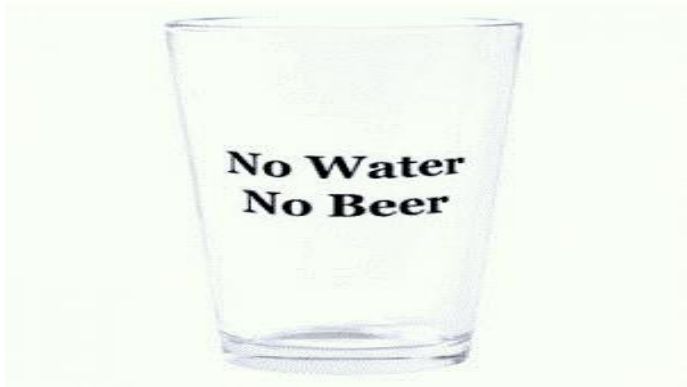


Exhibit 1. Long-term trends in the Consumer Price Index (CPI) for utilities (1913-2013). The index is set to 100 for 1982-1984 except for telephone and wireless services, where the index is set to 100 for 1997. Year (*) indicates start of series.



We are all in this together!



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