

This presentation premiered at WaterSmart Innovations

watersmartinnovations.com



Practical Lessons for Water Efficiency in Commercial Kitchens.....

*or How to Start Making Friends with Your
Commercial Foodservice Customers*



October 5th, 2016

The Project

- Commercial kitchens among the largest users of water in the commercial sector
- Most are in dire need of state-of-the-art guidance on water efficiency fixtures and practices
- AWE came up with idea to publish a Commercial Kitchens Water-Use Efficiency and Best Practices Guide
- PDF form as well as web guidance
- **Completion in November, 2016.**



What's In the Guide

- Analyzes the major water and energy use locations in restaurants to help identify conservation opportunities
- Discusses the latest water and energy efficient equipment
- Discusses water and energy savings through low-or no-cost operational and maintenance strategies
- Provides examples of field case studies describing different water-efficiency practices and benefits at four food service establishments in the US and Canada

The Project Participants

- Alliance for Water Efficiency
- Food Service Technology Center
- Metropolitan Water District of Southern California
- East Bay Municipal Utility District (California)
- Region of Waterloo (Canada)
- Aquieous (Texas)

Richard Young

Director of Education

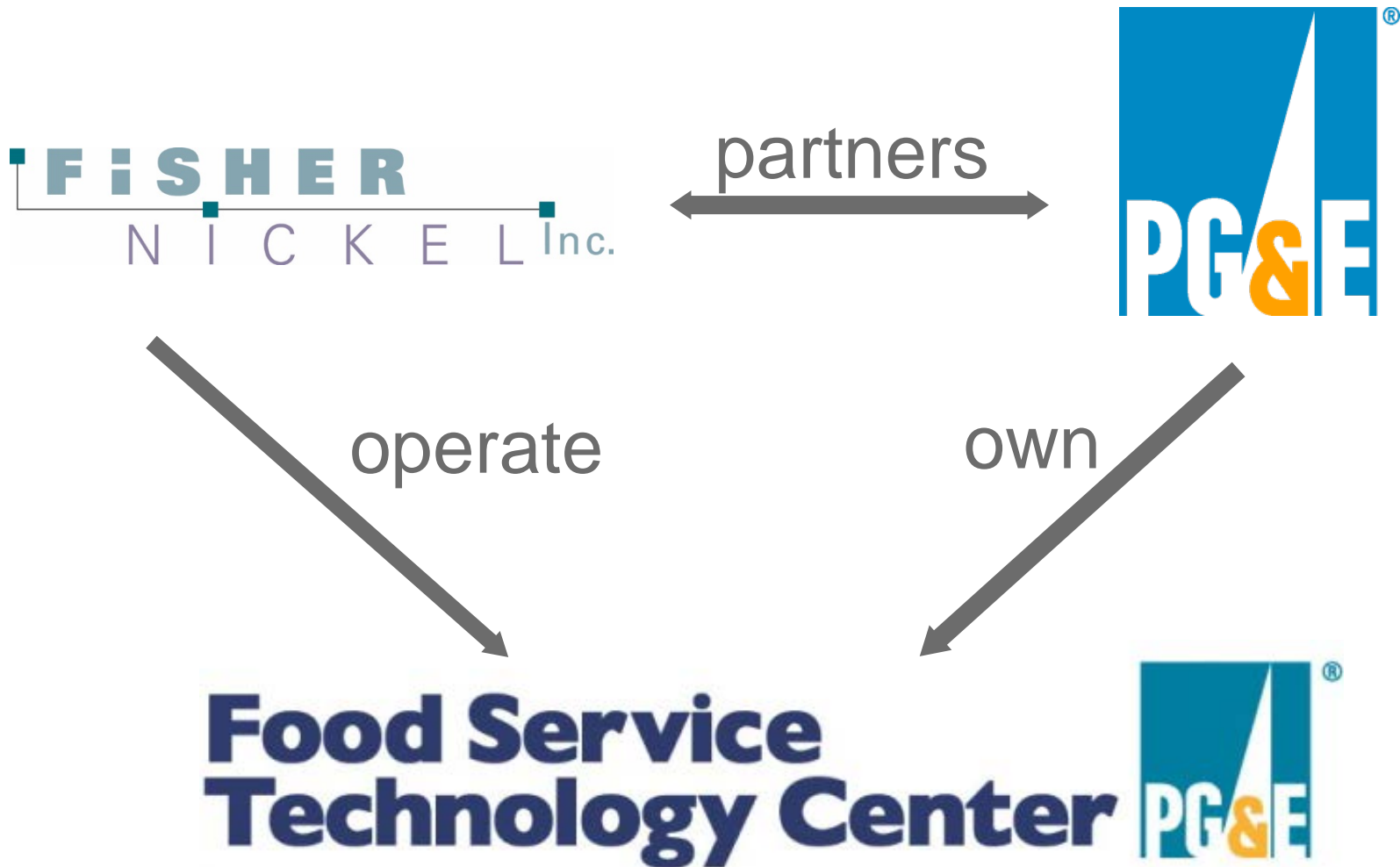


fishnick.com

**Food Service
Technology Center**



27 Years of Partnership



Today's Menu

1. How to influence food service operators
2. How to use the Best Practices Guide
3. The Dipper Well Case Study

Why should you pay attention
to your
foodservice customers?

A little perspective...

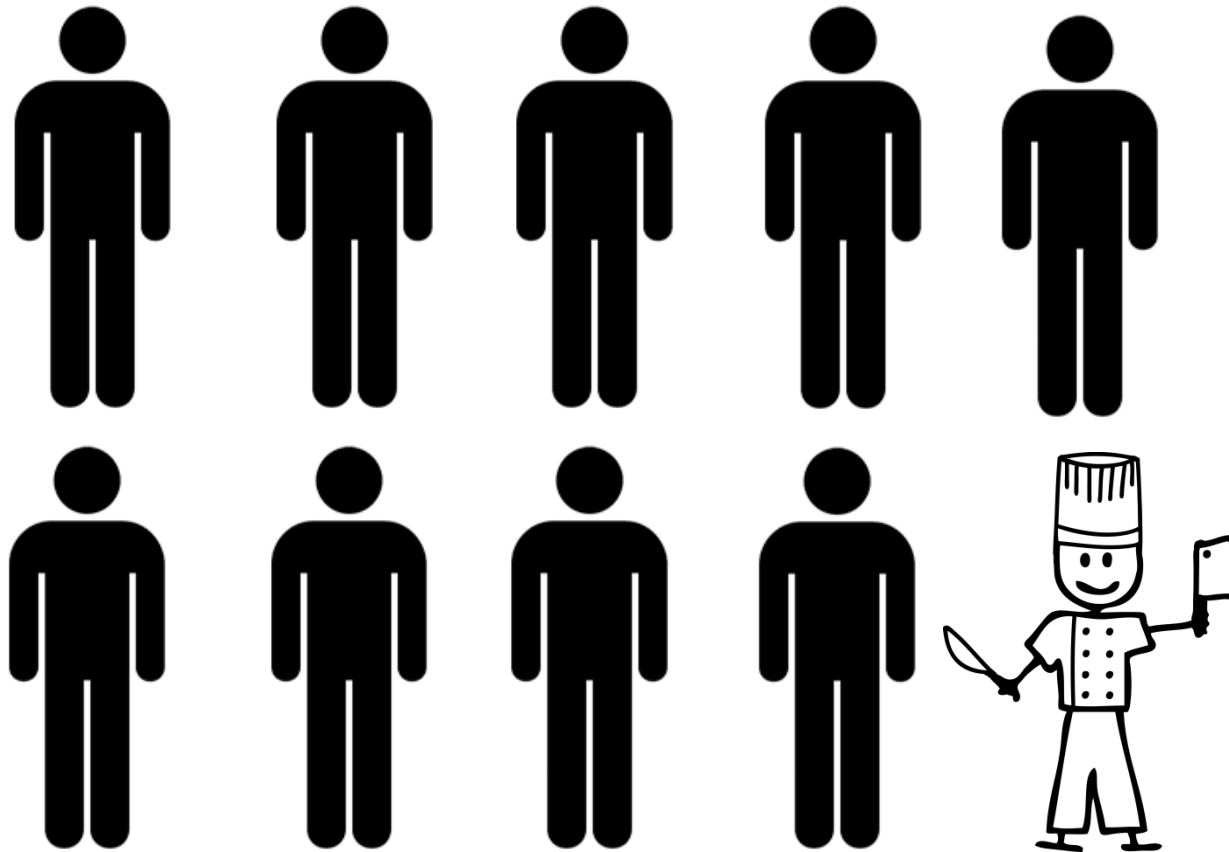
How big is the food service industry?



\$800 Billion a Year*

Equipment, Supply, Tabletop and Furniture = \$12 Billion**

“Restaurant industry is projected to employ 13.5 million people in 2014 — about one in 10 working Americans”





1 in 3
Americans'
#firstjob
was in the
restaurant
industry



SHARE if this is your story!

Food service is one of the largest single commercial end-uses.

Pretty much everyone is touched everyday by commercial Food service.

But, there is a lack of information available for food service owners and operators.

Who are your
foodservice customers?

Han Solo?

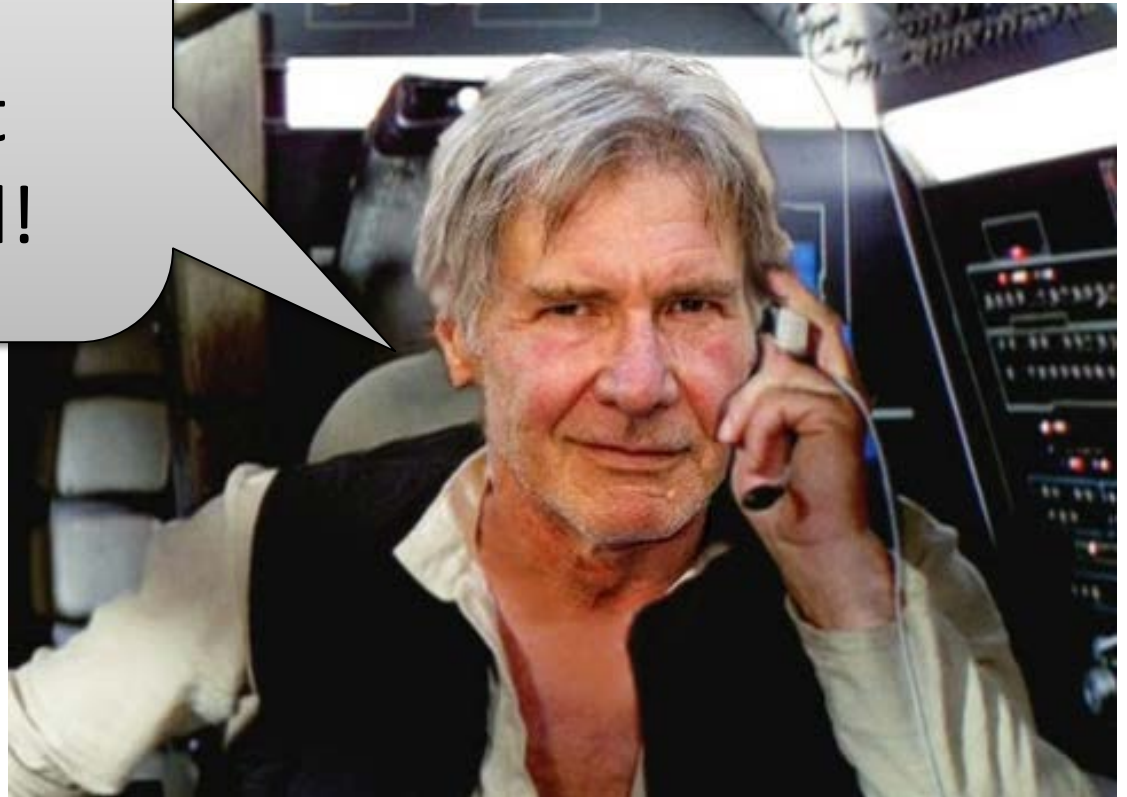
Restaurateur!

Heh, I just opened up
a new restaurant...
...it's called
Light Speed Pizza



One Week Later...

Yeah, I'm still open...
...but, damn!
This restaurant
business is hard!



These are hardworking busy people



This is a
relationship driven
industry

How You Can Help Your Foodservice Customers:

Science

Accessibility

Incentives

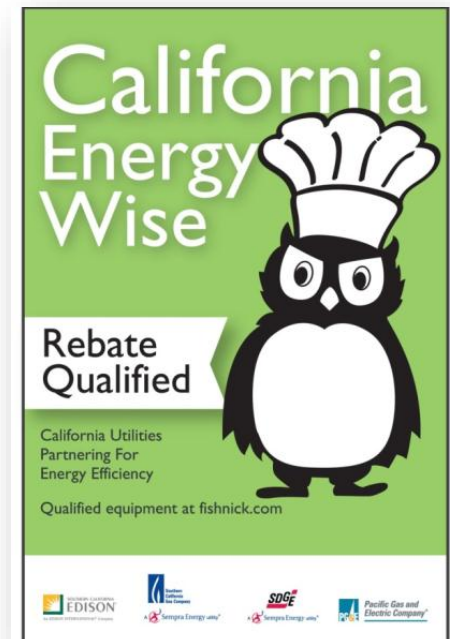
Persistence

CFS = Commercial Food Service

*Just what you needed...
another acronym*

Science:

CFS program must be based on
un-biased, third-party,
lab-derived data



Accessibility:

CFS program must be easy to find and utilize

Food service operators at all levels are very busy and will NOT dig for your information







Incentives:



Rebates are a good way to move
the market if...

they are easy to find and use

they are generous

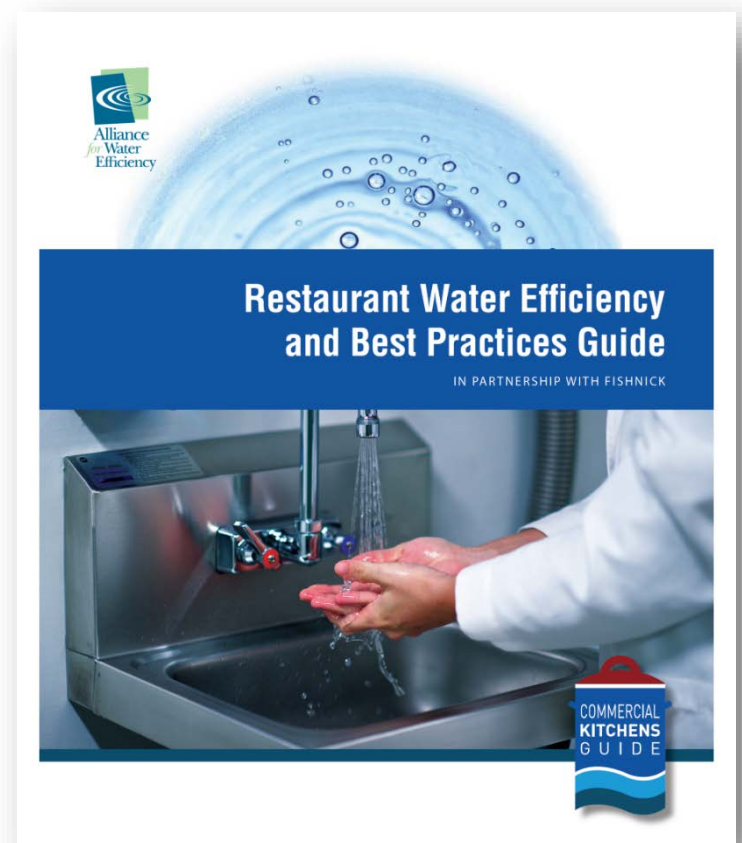
they are legitimate

Persistence:

Choose food service champions
(who know something about CFS)
and keep them on the task long
enough to get something done

Guide for Food Service

- For food service end users at all levels
- Guide will be simple, straight-forward, and highly readable
- Tips will be practical and actionable
- Pick it up, become interested, take action



THE LOW HANGING FRUIT: NO COST AND LOW-COST STRATEGIES

Do you know?

At one drop per second, a faucet can leak over eight gallons a day! That's 2,000 gallons per year!

A light stream of leaking cold water at about 0.5 gpm, which is about six gallons an hour, will add up to 43,800 gallons, by year-end, cost you almost \$600 in water alone, in

Leakage can occur anywhere throughout the water distribution system, including faucets, toilets and pipes. The amount of water that may seem insignificant, but it adds up to gallons — and dollars — in just a short period of time.

The bottom line: **water leaks are a drain on your profits and should be a priority maintenance item in every restaurant.**

To find specific "Common Leaks" outlined in the chart below — it simply takes a visual inspection of the equipment and fixtures listed, combined with following the tips under "What Can You Do?"

Most Common Leaks

Type of Leak	Equipment or Fixture	What	How to Fix It?
Water dripping from faucet	Faucet	Loose or worn O-ring, washer, or cartridge	Adjust or replace O-ring, washer, or cartridge
Water dripping from sink	Sink	Loose or worn O-ring, washer, or cartridge	Adjust or replace O-ring, washer, or cartridge
Water dripping from shower	Shower	Loose or worn O-ring, washer, or cartridge	Adjust or replace O-ring, washer, or cartridge
Water dripping from toilet	Toilet	Loose or worn O-ring, washer, or cartridge	Adjust or replace O-ring, washer, or cartridge
Water dripping from pipe	Pipe	Loose or worn O-ring, washer, or cartridge	Adjust or replace O-ring, washer, or cartridge
Water dripping from valve	Valve	Loose or worn O-ring, washer, or cartridge	Adjust or replace O-ring, washer, or cartridge
Water dripping from hose	Hose	Loose or worn O-ring, washer, or cartridge	Adjust or replace O-ring, washer, or cartridge
Water dripping from faucet	Faucet	Loose or worn O-ring, washer, or cartridge	Adjust or replace O-ring, washer, or cartridge
Water dripping from sink	Sink	Loose or worn O-ring, washer, or cartridge	Adjust or replace O-ring, washer, or cartridge
Water dripping from shower	Shower	Loose or worn O-ring, washer, or cartridge	Adjust or replace O-ring, washer, or cartridge
Water dripping from toilet	Toilet	Loose or worn O-ring, washer, or cartridge	Adjust or replace O-ring, washer, or cartridge
Water dripping from pipe	Pipe	Loose or worn O-ring, washer, or cartridge	Adjust or replace O-ring, washer, or cartridge
Water dripping from valve	Valve	Loose or worn O-ring, washer, or cartridge	Adjust or replace O-ring, washer, or cartridge
Water dripping from hose	Hose	Loose or worn O-ring, washer, or cartridge	Adjust or replace O-ring, washer, or cartridge

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Ice Machines

DID YOU KNOW...?

Your choice of ice machine can have a big impact on your restaurant's water usage. Although water-cooled ice machines are as energy efficient as air-cooled machines, their water use makes them far more expensive to operate. A typical water-cooled ice machine found in a restaurant setting can use as little as 160 gallons/100 lbs of water just to cool the machine (vs. an air-cooled machine which uses 0 gallons to cool the machine).

In terms of operating cost, an air-cooled (600 lb/day) machine can annually save around 328,700 gallons of water and \$3,700 in water costs over an equivalent water-cooled ice machine.

WHAT YOU CAN DO!

Install an ENERGY STAR qualified ice machine (Air-Cooled Only). Consult the retailer or go to ENERGY STAR website for advice on choosing an efficient ice machine. For example, you can look up performance data and water consumption data for high-efficiency ice machines using the ENERGY STAR Qualified Ice Machine List.

HOW DO YOU KNOW WHETHER TO REPLACE YOUR CURRENT ICE MACHINE WITH A MORE EFFICIENT ONE, OR JUST STICK WITH WHAT YOU'RE GOT?

- If you have a water-cooled machine, we highly recommend you consider replacing it sooner than later.
- You can also compare your current model against high-efficiency options by using the FSTO Ice Machine Cost Calculator.



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Practice Smart Habits

DAILY DOs AND DON'Ts

Informing your staff on more efficient uses of water is virtually FREE and can significantly impact a restaurant's water usage!

DON'T: Wash a dish rack that's partially full. Fully rack every dish you put in your dish machine. Also make sure to soak pots and pans and scrape plates and cookware.

DO: Multiple dipper wells. Turn them on only at first order, then as each new order comes in. Turn them off when not in use. Gas dipper wells section for more details and tips.

DO: Conserve drinking water. Many restaurants already only offer water to customers upon request. If you do, for those quick-service restaurants, consider offering a water pitcher or tap with reusable cups.

DO: Hand scraping with a wet rag or a plastic scraper to remove grease. Avoid using a high-pressure spray nozzle, which can force water through the drain machine.

DON'T: Wash veggies and fruit under running water. Pre-rinse them with a low-flow pre-rinse spray wand, if necessary, and use a basin or large bowl for the final wash.

DON'T: Turn lower production under running water. Put them in a electrically-actuated rack. If they leak some water, but can't be incorporated into the regular sink of the cooling unit, the day prep. Don't wait for them to fill the sink.

NOTE:

Offering bottled water does not seem to be a viable solution for conserving water. According to measurements, it takes three liters of water to produce one liter of bottled water. Bottled water also creates some serious waste problems, so it's best to avoid them if at all possible.

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Water Heaters

DID YOU KNOW...?

The Water Storage Tank will rust out eventually when it has reached its life expectancy and its ultimate failure may result in a slow leak or burst, a significant waste of water and loss of hot water to your restaurant. Also, the unexpected failure of the tank and the flooding of water may require you to shut down your restaurant and loss revenue.



Water heaters are often improperly installed and poorly maintained in restaurants. Storage tank water heaters are often found in a cramped far corner of the kitchen or basement and can be forgotten when implementing efficiency measures.

"TANKLESS", "ON-DEMAND" WATER HEATERS:

Some restaurants may use on-demand water heaters for dish machines in the kitchen, and/or small electric units at hand sinks in restrooms or dining rooms that are distant from the central water heater. While this doesn't lead to significant energy savings in a commercial restaurant setting, the FSTO has observed through market research that installing tankless water heaters at remote hand sink locations can result in some appreciable water savings. This is because the water is delivered much faster, so the common practice of leaving the water run until it is acceptably hot may be diminished, though actual savings are hard to project.

WHAT YOU CAN DO!

Use a commercial plumbing professional to install or replace a commercial water heater. Don't try to do it yourself, or risk you get by purchasing a residential tankless water heater. Tankless water heaters and fittings will fail quickly as they are designed for very light duty applications.

Water heaters should have an expansion tank and backflow preventer installed to protect the life of the heater and flow preventer. Consult to protect the life of the heater and flow preventer.

Pipe Insulation

Installing foam insulation on hot water pipes can save a significant amount of water by keeping water hot and minimizing the amount of water that is lost to the tap. Check out the relevant section under "What Can You Do?"

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Dipper Wells

DID YOU KNOW...?

- Some cafes, juice shops, and ice cream parlors have dipper wells that can flow as much as one gallon per minute. Flow rates are often as high as 1.0 gpm to 1.5 gpm.
- At 0.5 gpm running 24 hours per day and 365 days per year, a cold water dipper well wastes around 200,000 gallons of water and racks up \$2,000 in combined water/sewer costs annually!

WHAT YOU CAN DO!

Install a flow restrictor below the main valve so the dipper well flows at 0.2 gpm. By reducing the flow rate from 1.0 gpm to 0.2 gpm you can save roughly \$5,000 in water/sewer costs per year!

Eliminate your Dipper Wells. Unless your operation needs the dipper well for a specific food service function, such as scooping frozen milk or ice cream, it may not be necessary at all. Check with your health inspector about regulations regarding keeping and having staff routinely change out that water.

REAL STORIES FROM THE REAL WORLD:

Starbucks reduced their water use by over 15% in company-owned stores across the U.S. when they converted their standard faucet to a hand-mixed water system. These standard faucets consist of a spoon-rest stick under a hand to dispense water for a set period of seconds to provide water. The mixed items can then be mixed and served for a period of two to four hours based on company and local county food safety guidelines.

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Use the Guide to
Communicate with your food
service customers

Build a
relationship

Dipper Well Case Study



167 Gallons/Day

\$978/yr*

i.ScoopShower



9.6 Gallons/Day

\$57/yr*

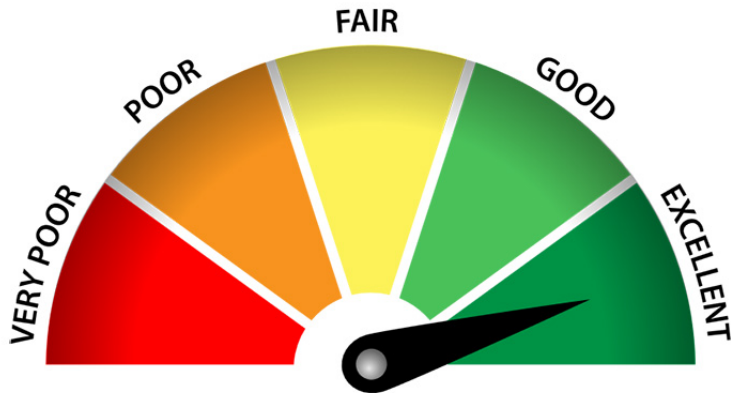
*site water costs of \$12/CCF

Dipper Well Case Study

\$900+ water savings

\$150 capital cost

i.ScoopShower



Bottom Line:
Commercial Food Service is an
important but underserved
customer segment

We should all work
to change that!

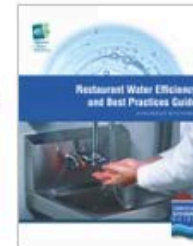
Our Work

The Alliance for Water Efficiency has undertaken significant workload, completed numerous projects and published research reports on a variety of topics related to water sustainability. Working independently and occasionally partnering with like-minded organizations, AWE strives to deliver in-depth information on these important subjects.

2016

Commercial Efficiency: *Restaurant Water Efficiency and Best Practices Guide* (coming November 2016)

This best practices guide is designed for members of the commercial kitchens, food service, and hospitality industries. It covers day-to-day best practices, case study summaries, and strategies for efficient management of the most common high-use equipment.



End-User Tool: *Water Conservation Tracking Tool*

The Tracking Tool is an Excel-based model that can evaluate the water savings, costs, and benefits of conservation programs for a specific water utility, using either English or Metric units.

Net Blue: *Water Offset Policies for Water-Neutral Community Growth*

Net Blue is a collaborative initiative to support sustainable community growth and develop a model ordinance communities can tailor to create a water demand offset approach that meets their needs.

Drought: *Managing Drought: Learning from Australia*

A report providing an overview of key events and initiatives implemented in Australia's four largest cities. The strategies developed during Australia's decade-long millennium drought provide a powerful resource.



Indoor Plumbing Efficiency: *The Status of Legislation, Regulation, Codes & Standards on Green Indoor Plumbing Water Efficiency* [PDF]



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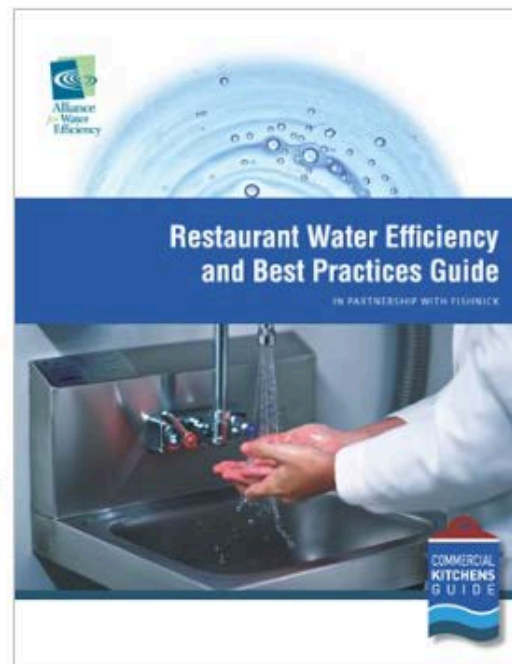
Commercial Kitchens Guide

Restaurant Water Efficiency and Best Practices Guide

2016-09-30

The Alliance for Water Efficiency identified the commercial kitchen setting as a place where significant water savings could be realized. It then sought to create a resource that would provide a broad understanding of both the importance and benefits of efficiency in commercial grade kitchens. At the same time, the resource would provide case studies, equipment-specific information, and other actionable information items for those in the restaurant and hospitality industry.

After identifying the need for an up-to-date and actionable resource for commercial kitchens, the Alliance for Water Efficiency worked with Fisher-Nickel, Inc., Aqueous, Metropolitan Water District of Southern California, Region of Waterloo, and East Bay Municipal Utility District, to develop and design the Restaurant Water Efficiency and Best Practices Guide. Together, it was decided that the Guide should be less a technical manual, and more a concise and straightforward resource for those inside the commercial kitchen industry: the Guide is less than 50 pages, but is a comprehensive resource that is full of easily digestible information and graphic representations that can help a restaurant manager make more water efficient decisions.



Watch for the Guide in November!
www.a4we.org

