Alliance *for* Water Efficiency

To promote the efficient and sustainable use of water

Commercial Kitchens Water Use Efficiency: Certification Programs and Kitchen Audits

May 2, 2017

Welcome

- Webinar will be 60 minutes in length with time for questions.
- Audio is through your telephone or computer microphone & speakers.
- The webinar phone line will be muted during the presentation because we are recording.
- Questions can be typed in throughout the webinar and will be answered at the end by the speakers.

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Our Goals Today

- Describe AWE's new Commercial Kitchens Water Use Efficiency and Best Practices Guide.
- Address the basics of performing an audit in a commercial kitchen setting
- Provide overviews for two Restaurant Certification programs:
  - ✓ Region of Waterloo Restaurant Certification Program
  - ✓ East Bay Municipal Utility District Water Smart Certification Program

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Today's Speakers

- Mary Ann Dickinson, President and CEO
  Alliance for Water Efficiency
- Charles Bohlig, Water Conservation Supervisor
  East Bay Municipal Utility District, Oakland, CA
- Steve Gombos, Manager of Water Efficiency
  Region of Waterloo, Ontario Canada
- Richard Harris, Manager of Water Conservation
  East Bay Municipal Utility District, Oakland, CA

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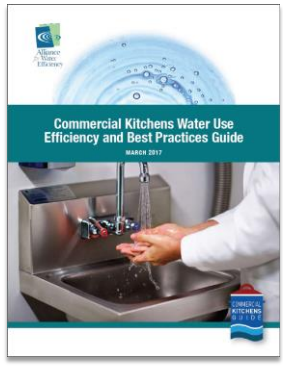
Commercial Kitchens Guide

- Prepared by AWE with Fisher-Nickel, Inc., Metropolitan Water District of Southern California, East Bay Municipal Utility District, Region of Waterloo, & Aiqueous as partners.
- Specifically designed for food service industry professionals, with emphasis on efficient business management and the impact to bottom lines.



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Commercial Kitchens Guide

- Walks readers through the critical efficiency steps that make sound business sense.
- Includes best practices, case study summaries, and strategies for high-use equipment.
- Includes guidance on preparing Action Plans
- Features two case studies

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Commercial Kitchens Guide

Primary topics include:

- Performing a use assessment to determine areas of improvement within the kitchen
- **Tracking water use**
- How-To's for quick and easy changes
- Tips for optimizing large-scale equipment such as Combination Ovens, Dipper Wells
- Water, energy and monetary savings included in the case studies

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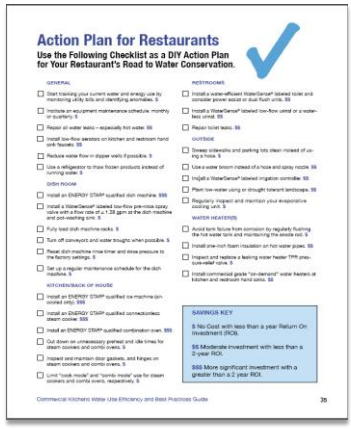
Commercial Kitchens Guide

- Includes specially developed elements to encourage continued conservation such as an Action Plan document and overviews of the Region of Waterloo's and East Bay Municipal Utility District's Certification Programs.


Action Plan for Restaurants
Use the Following Checklist as a DIY Action Plan for Your Restaurant's Road to Water Conservation.

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Commercial Kitchens Guide

- Only available to AWE members.
- PDF available.
- Currently taking bulk printing orders for hard copies, price estimate is $2.50 per copy.
- Deadline for orders is June 15.


CASE STUDY
ENERGY STAR® Steamer


Annual Water Consumption
Would you take a 97 minute shower?**

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Auditing Commercial Kitchens

- Where to Start a Commercial Kitchen Audit
- Tips to a Successful Audit
- Common Mistakes

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Water Accounting…

- Review the Water Bills
  - ✓ Obtain cover-count if possible
  - ✓ Look for trends, unusual peaks, a common sense review
  - ✓ Keep a regular record of all utilities and record them in a database/excel
  - ✓ Know where your water meter is and how to read it!

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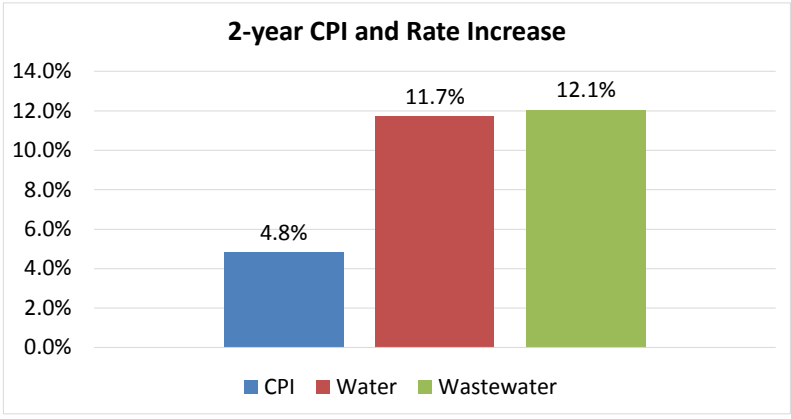
Bi-annual Increases Over 26 Years



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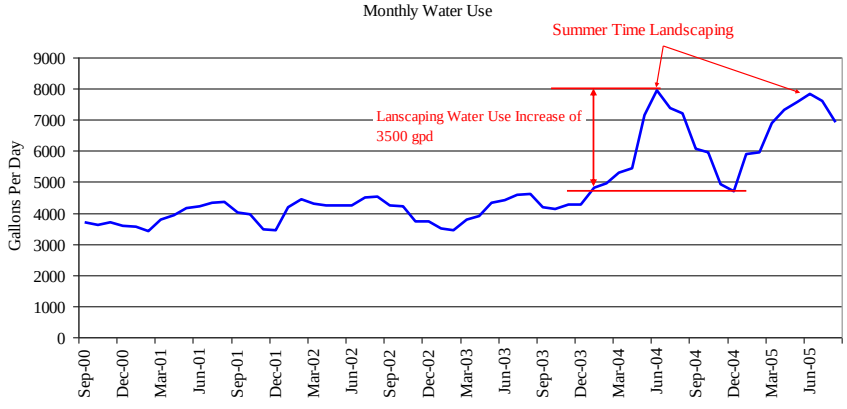
Water Accounting…



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Summer Increase Says…

- Re-landscaped?
- New irrigation system?
- Broken irrigation heads?
- New landscaper
  - ✓ $2,100 increase

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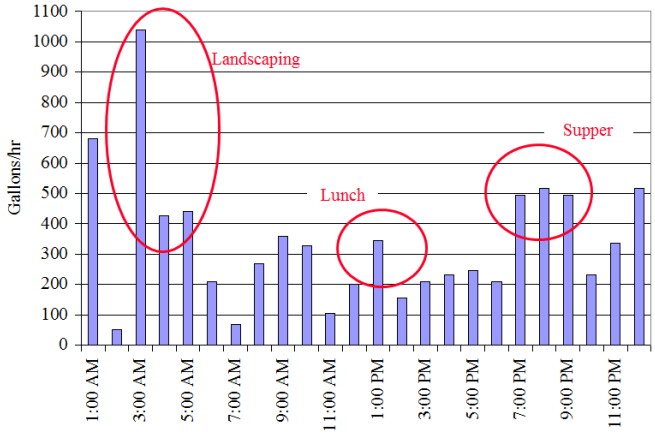
Water Accounting…with AMI



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Where is the Water Used in a Restaurant?

Dish Room	Food Prep	Roof Top & Outside	Refrigeration	Dining Room
Dish washers Glass washers Pot washers Pre-rinse nozzles Conveyor spray Manual wash down Disposals systems	Steamers Combination ovens Pasta cookers Steam tables Sinks: defrosting Sinks: food washing Table water	Evaporative-cooling Cooling towers --- Landscaping Cleaning	Water-cooled-condensing Ice machines	Table water Bathroom: Hand washing Toilets Urinals

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Use a Checklist

Action Plan for Restaurants

Use the Following Checklist as a DIY Action Plan for Your Restaurant's Road to Water Conservation.

GENERAL

- ☐ Start tracking your current water and energy use by monitoring utility bills and identifying anomalies. $
- ☐ Institute an equipment maintenance schedule: monthly or quarterly. $
- ☐ Repair all water leaks – especially hot water. $$
- ☐ Install low-flow aerators on kitchen and restroom hand sink faucets. $$
- ☐ Reduce water flow in dipper wells if possible. $
- ☐ Use a refrigerator to thaw frozen products instead of running water. $

DISH ROOM

- ☐ Install an ENERGY STAR® qualified dish machine. $$$

RESTROOMS

- ☐ Install a water-efficient WaterSense® labeled toilet and consider power assist or dual flush units. $$
- ☐ Install a WaterSense® labeled low-flow urinal or a waterless urinal. $$
- ☐ Repair toilet leaks. $$

OUTSIDE

- ☐ Sweep sidewalks and parking lots clean instead of using a hose. $
- ☐ Use a water broom instead of a hose and spray nozzle. $$
- ☐ Install a WaterSense® labeled irrigation controller. $$
- ☐ Plant low-water using or drought tolerant landscape. $$

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Don't be Afraid to Get a Little Dirty

- Boiler Based Steamer
- Average Water Usage = 40 gph

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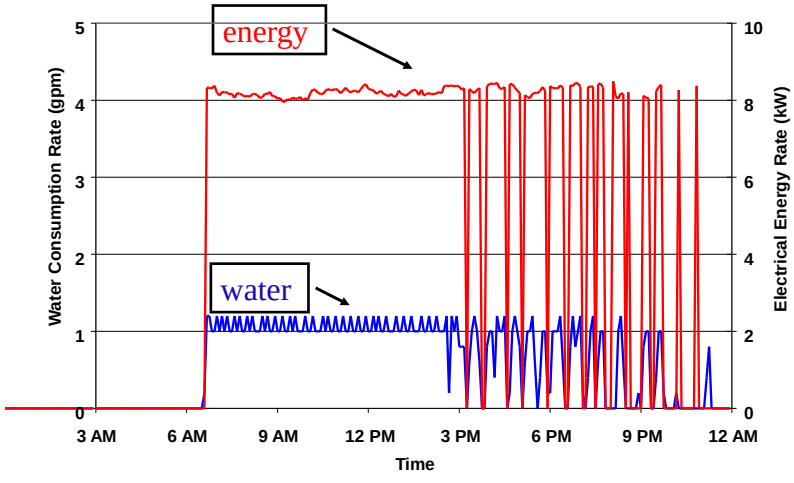
Casual Dining



Timed vs. Manual Mode

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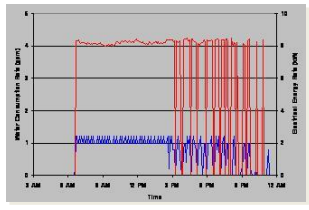
Variation of Steamer Use

- **6:40 am – 3:15 pm**
  - ✓ Steamer on manual mode
  - ✓ 8.5 hours
  - ✓ 69 kWh, 545 gallons
- **3:15 pm – 11:00pm**
  - ✓ Steamer on timer mode
  - ✓ 5 hours energized
  - ✓ 30.5 kWh, 240 gallons



AM: $4540 / year

PM: $2005 / year

(Based on 360 days/yr operation at $0.13/kWh & $5.00/100 cu.ft. total water cost in Los Angeles.)

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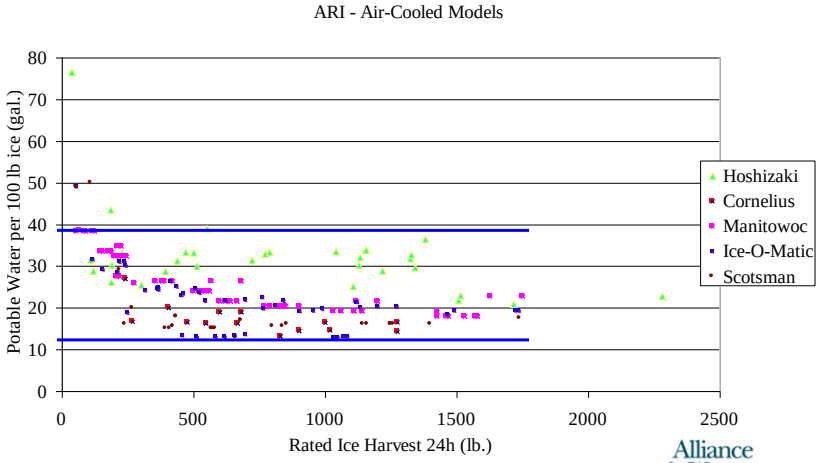
Air Cooled Ice Machines



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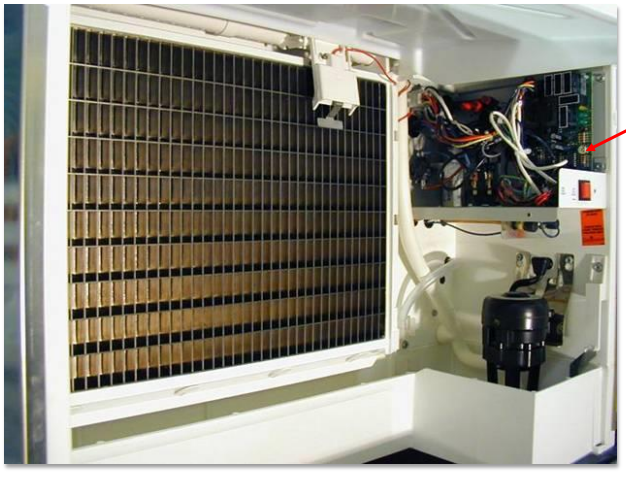
Inside an Ice Machine



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Water Trough Purge Timer

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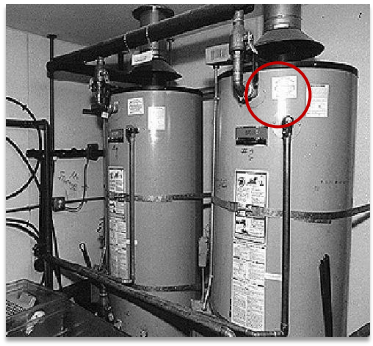
Look Outside the Cooking Area



Pressure Relief Valve

- One of the water heater's (160°F set point) pressure relief valve was leaking at a rate of 1/4 gallon/min.
- This in turn could cost up to $785 annually - energy only!
- Water and sewer cost - $875 or $1,660 combined.

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Commercial Kitchen Water Use Efficiency and Best Practice Guide

Resources and References

Air-Conditioning, Heating, and Refrigeration Insttitute (AHRI) Ice Machine Database
http://www.ahridirectory.org/ahridirectory/pages/acim/defaultSearch.aspx

Database of State Incentives for Renewable and Efficiency (DSIRE)
http://www.dsireusa.org

ENERGY STAR® Commercial Food Service Equipment
https://www.energystar.gov/products/commercial_food_service_equipment

ENERGY STAR® Guide for Cafes, Restaurants and Institutional Kitchens
https://www.energystar.gov/products/commercial_food_service_equipment

EPA Commercial Water Sense Program
http://www.epa.gov/watersense/commercial/

National Sanitation Foundation (NSF)/ANSI Listing for Commercial Warewashing Equipment
http://www.nsf.org/Certified/Food/

Toilet Maximum Performance Testing Database
http://www.map-testing.com/

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Region of Waterloo Restaurant Certification Program

- Quick background
- Building relationships
- Results
- New Commercial Kitchen Guide

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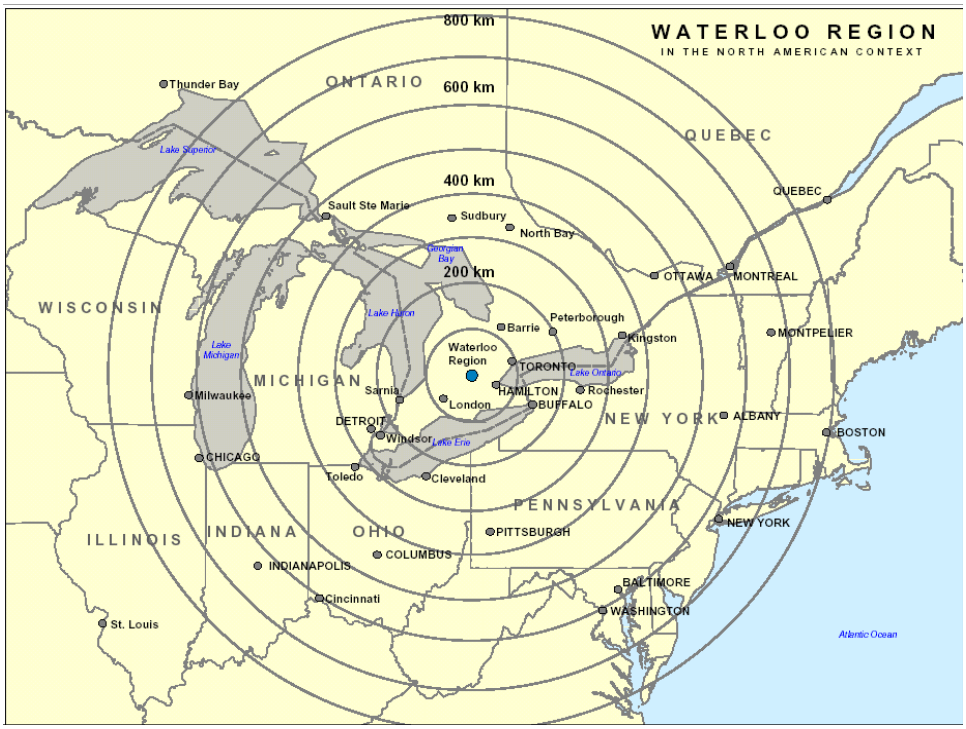

Waterloo Region Water Supply

- Population: 575,000
- Water System
  - ✓ Integrated Urban System
  - ✓ 15 Rural Systems
  - ✓ 75% Groundwater
- Service Population: 525,000

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3rd WE Master Plan, 2015 - 2025

- Defer GL Pipeline Indefinitely
- ↓ Total DW by 362 million gallons/Year
- ↓ Greenhouse gas by 8,500 Tons
- ↓ Water Efficient Technology (WET) funding programs, residential, commercial, industrial and institutional sectors

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Restaurants in Waterloo Region

- 2,800 food service facilities
- 1,300 restaurants
- Use 1 billion gal/year
- Much of it hot water
- Variable consumption
- 26,000 gal/year small
- 5 million gal/year buffet

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Building Relationships over 10 years

- Water reviews
- 597 pre-rinse spray valves replaced at no cost
- 14 million gal/year water savings

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More Opportunities for Restaurants

- Reduce leaks
- Eliminate wasteful behaviors
- Replace inefficient equipment:
  - ✓ Toilets
  - ✓ Water softeners
  - ✓ Ice machines
  - ✓ Steamers
  - ✓ Dishwashers
  - ✓ Water Cooled compressors

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Certification Program launch 2015

- Points awarded for initiative taken
- Certified water efficient
- Expanded to include all businesses in 2016

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Point System to Certify

Activity	Points
Contracted Water Balance Audit (funding up to 50% available)	3
A Water Use Review (Region staff)	1
Billing Analysis & Benchmarking	1
Proven water savings	3
Employee training	2
Register for "Blue W" program	1

Need Min 5 points to certify

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What's in it for restaurateurs?

- Free reviews and consulting
- Funding
- Water & Energy savings
- Reduced overhead
- Recognition in the community
- Communications support
- More business and happy customers

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Results

- 30 restaurants certified, 2015-'17
- Average 10% short term savings
- 1.5 million gal/year (to 2016)
- Potential to reach 30% savings

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Tool Box

- Literature for staff training
- Fact sheet summarizing steps they took
- Framed certificate
- Window Clings
- Table-top promotion cards
- New Commercial Kitchen Guide

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EBMUD Water Smart Certification Program

- EBMUD overview
- WaterSmart Certification:
  - ✓ Drivers
  - ✓ Conservation services, tools
  - ✓ Program design and criteria
  - ✓ Award and recognition materials
  - ✓ Program results

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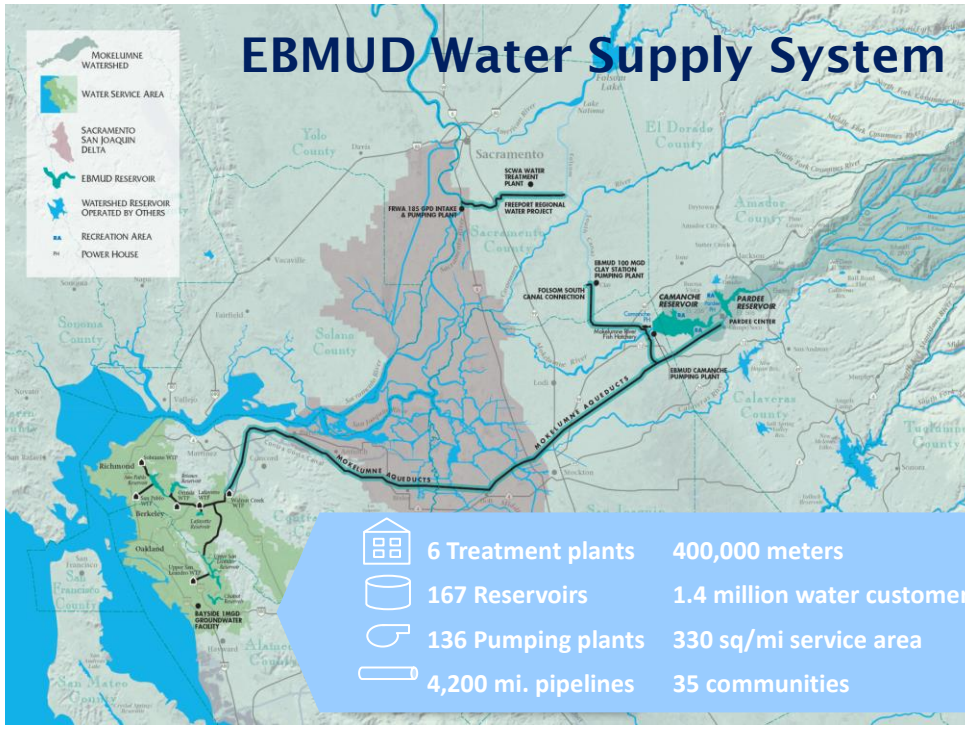
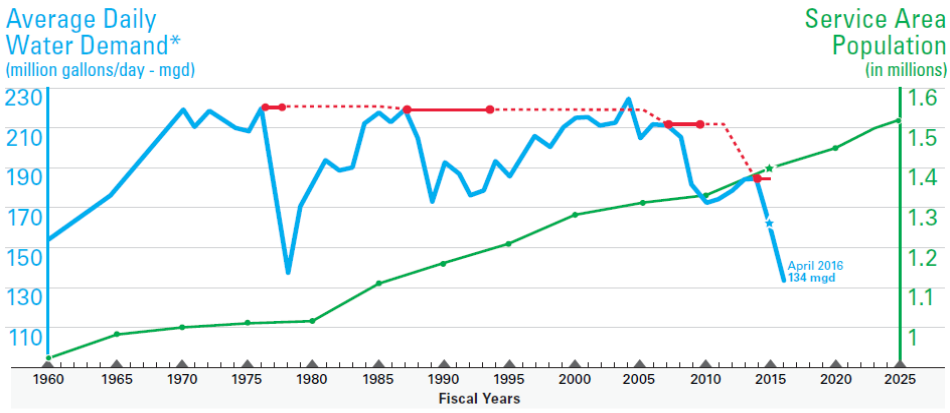


Demand down, population up

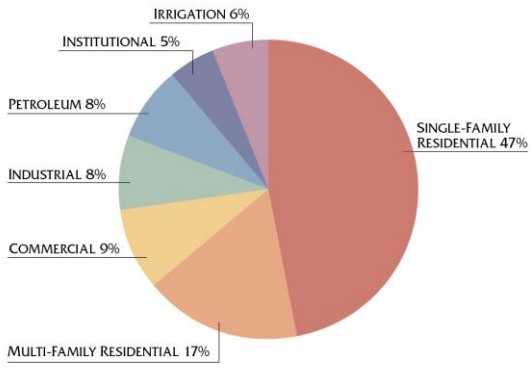


Even more astounding, April 2016's Average Daily Water Demand (amount of water we produce based on customer need) dropped to 134 million gallons per day, the lowest April water production since 1978.

*Demand measures the District's production of water based on customers' needs.

EAST BAY MUNICIPAL UTILITY DISTRICT

EBMUD Water Use By Customer Category



NOTE:
Based on Calendar Year 1975-2014 metered consumption data.

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Certification Drivers: EBMUD Business Classification Codes

- 91 total codes
  - ✓ Industrial/Petroleum (55)
  - ✓ Commercial/Irrigation (29)
  - ✓ Institutional (4)
  - ✓ Residential (3)
- Metered data back to 1975
  - ✓ Online database
  - ✓ Data mining
  - ✓ Report graphics

Customer Sector	2016 Accounts
Commercial	15,540
Industrial	1,850
Institutional	3,700
Irrigation	5,275
Total	26,365

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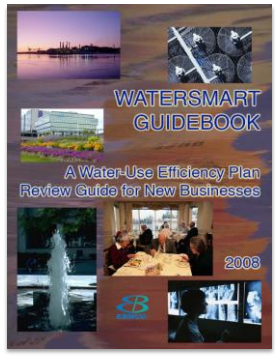
Conservation Services And Tools: Business WaterSmart Development Guidebook

- Reference document on business water efficiency
- >15 water use technologies
- >20 business types
  - ✓ description of end uses
  - ✓ water savings hardware/processes
  - ✓ cost-benefit analyses
  - ✓ hardware and customer profiles
  - ✓ permit process
  - ✓ marketing plan
  - ✓ technical appendices



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Business WaterSmart Development Guidebook

Type of Business
- Offices
- Schools
- Restaurants
- Retail
- Hotel/Motel
- Grocery
- Medical facilities
- Laboratories
- Laundries
- Manufacturing
- Vehicle washing
- Bakeries
- Automotive
- Printing

Water Using Technology
- Plumbing fixtures
- Landscaping
- Pools, spas & fountains
- Water treatment
- Alternate water sources
- Thermodynamic processes
- Food service
- Wash down & sanitation
- Laundry
- Submetering
- Process water
- Photo & film processing
- Medical & laboratory
- Vehicle wash

COMMERCIAL KITCHENS GUIDE

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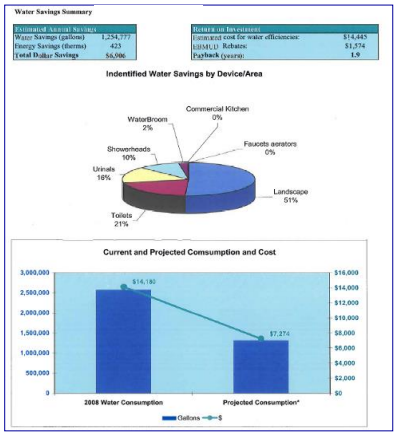
Conservation services and tools: Business Site Survey Reports



Savings and Payback Summary for Water Efficient Measure(s) Identified

Identified Measures	Initial Cost[1]	Incentives & Rebates[1]	Annual Water Savings (gallons)	Energy Savings (Therms)	Annual Water & WW Savings ($)	Annual Energy Savings ($)	Total Annual Savings ($)	Simple Payback (years)
Landscape	$0	$0	638,335	0	$3,507	$0	$3,507	Immediate
Toilets	$7,845	$576	261,469	0	$1,437	$0	$1,437	5.1
Urinals	$6,300	$848	196,184	0	$1,078	$0	$1,078	5.1
Showerheads	$ FREE	$ FREE	128,571	412	$706	$0	$706	Immediate
WaterBroom	$300	$150	26,863	0	$148	$0	$148	1.0
Commercial Kitchen	$ FREE	$ FREE	3,355	11	$18	$11	$30	Immediate
Faucets aerators	$ FREE	$ FREE	0	0	$0	$0	$0	Immediate
Totals	$14,445	$1,574	1,254,777	423	$6,895	$11	$6,906	1.9

[1] $ FREE indicates that EBMUD provided your facility of free water efficient device.

Program design and criteria

- Applies to business and institutional customers
- To participate in the program applicants must:
  - ✓ complete an EBMUD water use survey
  - ✓ implement water use efficiency measures to meet established benchmarks
  - ✓ conduct employee water-efficiency training
  - ✓ participate in a post-implementation inspection and review
- Certified businesses have their water consumption tracked annually
- Required to recertify every three years

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Working with Community Partners

- Long standing referral programs with other utilities, NGOs
- One stop shopping for water, energy, solid waste reduction services
- Learned from success, lessons of other recognition programs

Bay Area Green Business Program
Environmental Values at Work

STOPWASTE.ORG
Reducing the Waste Stream for Alameda County

FOOD SERVICE TECHNOLOGY CENTER
PROMOTING ENERGY EFFICIENCY IN FOODSERVICE

WaterSense
Meets EPA Criteria

ENERGY STAR

PG&E

U.S. GREEN BUILDING COUNCIL
LEED
USGBC

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Water Smart Certification Program Benefits

- Provides umbrella conservation brand
- Establishes efficiency benchmarks
- Increases customer participation
- Rewards outstanding water efficiency
- Fosters partnerships with vendors, designers, and developers
- Supports local, state and national resource efficiency programs
- Advances adoption of water efficiency technology and best practices toward increased market transformation




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EBMUD Business WaterSmart Award Materials

Wall Plaque

Window Decal

EBMUD Lobby Wall Display

WaterSmart Certification Program Results

- Since 2009, >90 businesses certified/recertified
- >100 million gallons per year combined water savings
- Food service awardees:
  - ✓ Angeline's Louisiana Kitchen, Berkeley
  - ✓ Barney's Gourmet Hamburger - Solano, Berkeley
  - ✓ Choicelunch, Danville
  - ✓ Le Bateau Ivre, Berkeley
  - ✓ Triple Rock Brewery, Berkeley
  - ✓ Cactus Taqueria – College
  - ✓ Peerless Coffee & Tea Company
  - ✓ Revolution Foods, Oakland

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In Closing…

- Many thanks for joining us! Questions?
- A PDF and a link for this recorded webinar will be distributed in a few days.
- Additional questions? Send to Liam at liam@a4we.org
- Don't miss these webinars:
  1. May 23: Exemplary Programs Webinar: New Utility Business Models
  2. June 7: Net Blue: Water Neutral Growth Ordinance
  3. June 20: EPA/AWE/IA Webinar: *WaterSense and SWAT – What's the Difference?*

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Thank You for attending the webinar!
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