



#### Utilities

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## **Commercial Industrial and Institutional (CII) Training Water Efficiency Grant Final Progress Report Update**

### **Training Results**

Funds from the grant successfully supported the CII training lead by Maddaus Water Management. The training took place in Fort Collins from August 23 to August 25 2018. Twenty-three participants attended over the course of three days representing the following 16 entities: Denver Water, City of Oklahoma City, Aurora Water, City of Westminster, Fort Collins Utilities, Board of Public Utilities City of Cheyenne, Colorado Spring Utilities, Eagle River Water & Sanitation District, City of Boulder, Colorado Water Conservation Board, Centennial Water and Sanitation District, Boulder County Public Health/Partners for a Clean Environment, Resource Central, Thornton Water, and Nexant Inc.

Three customers were audited, and different topics were reviewed at each location. Below is a list of what was reviewed at each site:

#### Customer 1:

- Deionized (DI) Water System
- Scrubbers
- Cooling Tower
- HVAC System
- Possibility of reclaim/recycle of DI water

#### Customer 2:

- Commercial Kitchen
- Cooling Tower
- Sterile Processing
- Commercial Laundry
- Irrigation (if time permits)

#### Customer 3:

- Swimming Pool
- Extension Facility – Outdoor water use
- Steam autoclaves
- Commercial Kitchen
- Bathrooms (Urinals, Flushvavles, Toilets, Showers)

Some of the largest hurdles included: (1) coordinating with the correct person to schedule the audit and (2) accessing all water-using areas in large facilities. Despite these hurdles, 100% of participants felt that the in-person audits improved their knowledge and skill level.

Reports were distributed to each customer. Each report identified the top three projects and water savings (summarized below).

Customer 1:

- Estimated Water Savings: 12,920 gallons
- Replace 1.6 gallon per flush toilet with 1.28 gallon per flush toilet
- Replace 1.0 gallon per flush urinal with 0.125 gallon per flush urinal
- Replace public lavatory aerators with 0.5 gallon per minute aerators

Customer 2:

- Estimated Water Savings: 21,024 gallons
- Replace pre-rinse spray valves with 1.1 gallon per minute or less models
- Install cooling tower submeter
- Install high-efficiency autoclave replacement

Customer 3:

- Estimated Water Savings: 1,748,798 gallons
- Dishwasher leak repair
- Install on demand sensor for pool and spa discharge
- Replace pre-rinse spray valves with 1.1 gallon per minute or less models

While great water savings opportunities were identified at each site, it has taken time to work with facility managers to implement projects due to facility budgeting cycles and shifts in organization priorities (e.g. implementing energy vs. water projects). Customer 1 and 3 have implemented some of the strategies outlined in their audit reports.

## Overview of Training Success

The training's original goals were:

1. Provide training in methodologies and best practices for conducting commercial customer audits
2. Provide training as to how to gather data to effectively benchmark commercial facilities
3. Create networking group for Colorado utilities working in the CII sector
4. Identify future areas of opportunities to grow Colorado's conservation efforts in the CII sector (e.g. creation of Colorado CII benchmarking network)

To evaluate how the training met these goals a training debrief meeting was hosted on April 12, 2019 (8 months after the initial training), as described in Task 3 of the initial application. The goal of the meeting was to identify: (1) feasibility of implementing training material, (2) for those that were able to implement training success and challenges surrounding CII benchmarking, and (3) areas of opportunity in the CII sector.

100% of participants felt that the CII training provided methodologies and best practices for conducting audits (**Goal 1**). Additionally, the majority felt that the training provided information on how to gather data to benchmark commercial facilities, however two felt they could use more practice estimating savings for specific projects (**Goal 2**).

Specific successes for individual utilities include:

- Thornton Water: Targeting restaurants by distributing Alliance for Water Efficiency's (AWE) *Commercial Kitchen Water Use Efficiency and Best Practices Guides* and offering free audits.
- Centennial Water and Sanitation District: Targeted and audited schools in Utility's service area; working to expand with hiring of summer interns.
- Aurora Water: Started CII audit program (audited ~10 facilities to date).
- Board of Public Utilities City of Cheyenne: Started CII audit program (audited ~1 facility to date).
- Fort Collins Utilities: Expanded CII audit program (audited ~20 facilities to date).
- Northern Water: Plans to audit facilities onsite.

Water savings from these efforts was only calculated for Fort Collins Utilities because most programs are new and there was limited access to other Utility data. Fort Collins Utilities estimates that its expanded CII program has saved an estimated 1.8 million gallons to date (~90,000 gallons saved per audit).

In addition to success outlined above, the group also identified opportunities moving forward. Specifically:

- Additional experience estimating return on investments and cost savings for projects.
- Need more opportunities to practice auditing complex CII facilities (e.g. cooling towers and data centers).
- Many are limited by lack of person-power to complete audits.

To address these concerns and build upon the CII network (**Goal 3**) a subset of the initial group (Fort Collins Utilities, Aurora Water, Thornton Water, Centennial Water and Sanitation, Board of Public Utilities City of Cheyenne) have agreed to lead efforts (**Goal 4**) that will:

- Leverage Colorado Water Wise and the Rocky Mountain Section AWWA to host two meetings related to CII every year. One will be hosted in the spring and one will be hosted in the fall. The purpose of these meetings will be to build upon the CII network within Colorado. Meetings may include share-outs from Utility programs, educational opportunities (e.g. presentations from experts in specific fields), practice audits, etc.
- Start a CII audit "shadow" program to increase opportunities to practice CII auditing skills. Utilities will share audits with other members within the group. Anyone from the group can shadow the audit to practice skills and learn from each other. Fort Collins Utilities is initiating and managing the program.
- Develop one-pagers for complex CII process (e.g. cooling towers). Potentially leverage funding from Colorado Water Wise to develop marketing materials to be used by Utilities and customers.

Thank you for funding this first step and as the CII network moves forward we hope to collaborate with CWCB on additional opportunities!

Below is the final revised timeline for the remainder of the project:

**Task 1 – Training Development, ~~January 2018 – March 2018~~, January 2018 – August 2018**

*Phase 1: Complete*

*Phase 2: Complete*

**Task 2 – Training Execution, ~~April 2018~~ August 22<sup>nd</sup> – 24<sup>th</sup> (revised)**

*Complete*

**Task 3 – Follow Up & Network Development, ~~November 2018~~ April 2019 (revised)**

*Adjusted to April to provide more time between training and follow-up meeting. A final report will be submitted after the follow up event has taken place that describes the final results from each site visit and successes of utilities in implementing CII measures.*