Formatted

Executive Summary for the CII Task Force Water Use Best Management Practices

Background and History

California's water demands have begun to reach and, at some times in some places, exceed the available water supply. Although the State has a vast supply of water resources competing demands from agriculture, residential, commercial, industrial and institutional (CII) businesses and the environment are placing a strain on that supply. Yet water is essential to support California's 8th largest economy in the world and as the most populous state in the United States at 37 million (2010 census).

Growing population, climate change, and the need to protect and grow California's economy while protecting and restoring our fish and wildlife habitats make it essential that the state manage its water resources as efficiently as possible. The State of California Department of Finance's 2012 population projections estimate that California's population will continue to grow, approaching 40 million in 2018 and 50 million in 2048. The 2009 California Water Plan Update (Update 2009) addressed the variability of population, water demand patterns, environmental patterns, the climate, and other factors that affect water use and supply. Update 2009 incorporated consideration of uncertainty, risk, and sustainability and used the following three future scenarios to estimate population and other factors by 2050: Current Trends, Slow and Strategic Growth, and Expansive Growth. Under those scenarios, the population of California by 2050 is estimated to reach 59.5 million, 44.2 million and 69.8 million, respectively. Under these same scenarios, urban sector water use is estimated to increase by 6, 1.5 and 10 million acre-feet per year by 2050, respectively.

According to the 2009 CA Water Plan Update scenarios, urban sector water use is estimated to increase between 1.5 and 10 million acre-feet per year by 2050. The demands are heavily influenced by assumptions about future population growth and water conservation water savings. An increase of 6 million acre-feet per year represents the Current Trend Scenario.

To address ongoing and persistent concerns about the state's water resources, California's former Governor Schwarzenegger issued an executive order in February 2008 that called for a 20 percent reduction of per capita water use in the urban sector by 2020. In November 2009, Senate Bill (SB) X7-7 (Steinberg) made that order a State law by amending the California Water Code.

Furthermore, SB X7-7 recognizes that:

- Reduced water use through conservation achieves significant energy and environmental benefits and can help protect water quality, improve streamflows, and reduce greenhouse gas emissions.
- Diverse regional water supply portfolios will increase water supply reliability and reduce dependence on the Sacramento- San Joaquin Delta.
- The success of state and local water conservation programs to increase efficiency of water use is best determined on the basis of measurable out comes related to water use or efficiency.

SB X7-7 contains several mandates designed to promote water conservation and efficiency throughout California. One of these mandates directs the Department of Water Resources (DWR), in coordination with the California Urban Water Conservation Council[1] (CUWCC) to "convene a Task Force consisting of academic experts, urban retail water suppliers, environmental organizations, and commercial, industrial and institutional water businesses to develop alternative best management practices (BMPs) for the commercial, industrial and institutional water sector. (10608.43)." The CII Task Force, in conjunction with DWR, was ordered to submit a report to the legislature to address:

This report for the reader's convenience is displayed in two volumes. Volume I provides a summary of the material presented in greater detail in Volume II, which includes the Appendices and Case Studies.

- A review of multiple sectors within CII businesses and recommended water use efficiency standards
- Appropriate metrics for evaluating CII water use
- Evaluation of water demands for manufacturing processes, goods, and cooling
- Evaluation of public infrastructure necessary for delivery of recycled water to the CII sectors
- Evaluation of institutional and economic barriers to increased recycled water use within the CII sectors
- Identification of the technical feasibility and cost effective BMPs

[1] The California Urban Water Conservation Council was created to increase efficient water use statewide through partnerships among urban water agencies, public interest organizations, and private entities. The Council's goal is to integrate urban water conservation Best Management Practices into the planning and management of California's water resources.

Report Development Processes

DWR and the CUWCC project management team formed the CII Task Force to develop BMPs, metrics and recommendations for the legislature. The Task Force members provided technical information which was incorporated into the report, reviewed technical material and documents, and provided comments, data and supporting information to the DWR and CUWCC project management team which prepared this report and implemented §10608.43. The recommendations in this report reflect a consensus of the Task Force members.

The CII Task Force initially convened in March 2011 and held monthly meetings to complete this report Agendas were posted ten days prior to meetings on the CUWCC CII Task Force and DWR Water Use Efficiency websites[2]. Meetings of the CII Task Force were open to the public. The public and other interested parties were given an opportunity to comment throughout the process.

Photo Place Holder

Photo Place Holder

The CUWCC and their contractors, under the direction of DWR, drafted the initial documents for the first draft. DWR then assembled and edited the first and subsequent drafts.

Recommendations

This report explores a range of issues associated with water use and efficiency opportunities within the CII sector and includes:

- Best Management Practices (BMPs)
- Best Available Technology (BAT)

[2] http://www.cuwcc.org/2column.aspx?id=16620 and www.wateruseefficiency/sb7

- Recommendations
- Metrics for measuring water conservation

The "Recommendations" section of this report provides direction on procedures to further formalize and assure implementation, verify and report on implementation, and adopt changes as practices and technologies improve. Recommendations also include next steps and a list of potential legislative actions.

> It is recommended that an advisory group or committee be formed to further analyze and make recommendations regarding the development, use and capture of pertinent metrics and BMP's.

The BMP implementation process should include participation by the State legislature, State agencies, industry groups, CII businesses, water agencies, wastewater agencies, environmental groups and other stakeholders.

A mechanism for verification of progress of the implementation will need to be defined, implemented and monitored and a means developed to collect, quantify, report and better track water use data in the CII sectors.

Throughout the BMP implementation process, it is important to remember that each CII site is unique, accordingly, the approaches to implementing BMPs and determining metrics and cost-effectiveness need to consider that uniqueness. Finally, water use comparisons between various business sectors or between individual businesses are best applied within an individual business or customer due to their unique site-specific characteristics.

A summary of the recommended actions is provided below.

Best Management Practices (BMPs)

A wide range of BMPs are available to improve the efficiency of water use within the CII sectors. These BMPs include both new technologies and improvements in management. Implementation of these BMPs could be facilitated by all stakeholders by doing the following:

- Endorse and adopt a formal process and commit to ongoing support for CII water conservation measures to address issues identified in this report.
- Share and promote the importance of BMP implementation with CII businesses and the general public.
- Conduct state-wide workshops in coordination with industry organizations.

- Provide technical and financial assistance and advice to those implementing the BMPs.
- Develop a mechanism for reporting progress that could include:
  - Periodic reports to the Legislature through DWR or other designated entities
  - Inclusion of progress reports in CUWCC reports to the State Water Resources Control Board (SWRCB).
  - Inclusion of progress reports in urban water supplier Urban Water Management Plans (UWMPs).
- Identify a mechanism to assure these critical issues are addressed.
- Develop approaches to track the success and effectiveness of BMP implementation efforts and water savings results.
- Develop a mechanism to update the CII BMPs as practices and technologies improve.

Implementation of Cost Effective BMPs

This BMP report provides CII water users with information on how to conduct an audit which they can use to reduce water and wastewater use and help to reduce bills, recognizing it is up to the entity to evaluate specific circumstances. The audit looks at the current water use and types of water using equipment in the facility.

> "Fortunately, there are numerous cost-effective strategies that can be applied to achieve significant water savings in the CII sector. Estimates indicate that this potential ranges between 710,000 and 1.3 million acre-feet per year"
>
> *(Making Every Drop Work: Increasing Water Efficiency in California's Commercial, Industrial, and Institutional (CII) Sectors 2009 NRDC)*

Many facilities managers have found that they can begin the process by simply looking at water and wastewater use and utility bills and comparing their use to similar facilities that their company may operate.

CII businesses should perform audits to identify opportunities for implementation of BMPs and implement all cost-effective BMPs. Following audits they should calculate the cost-effectiveness of various measures and factors such as: projected water and wastewater cost savings over time, energy savings, implementation cost, potential incentives available, and water supply reliability benefits. Water agencies should incorporate audits into their conservation programs, consider

financial incentives for BMP implementation, and provide other technical assistance as appropriate.

The CUWCC should continue to update their BMPs for water agency CII conservation programs and technology to incorporate the CII BMPs, audits, and cost-effectiveness assessments. All CII businesses should consider implementing the recommended BMPs at the time of installation or construction improvement.

Specific BMPs that could be implemented for the various CII sectors are described in Section 7 of Volume II.

Metrics and Measuring Progress

Water use metrics require further evaluation especially for the industrial sector. The following steps should be taken by the appropriate local and State agencies, professional groups and industry representatives to assure that the metrics used provide meaningful measurement of the progress that is taking place:

- Provide tools, guidance, and training to their CII constituents and businesses on BMPs.

- Establish and use metrics for benchmarking how to demonstrate improved water use efficiency over time.

- Develop software for voluntary and anonymous water use reporting using an approach similar to the U.S. Environmental Protection Agency (USEPA) Energy Star's Portfolio Manager. Programs or organizations such as the USEPA's WaterSense or CUWCC could develop these tools. The data can be used to develop norms and track trends in CII water use and assist DWR's Water Plan Update water use calculations.

- Set efficiency standards for certain water use devices and equipment similar to existing device standards for commercial pre-rinse spray valves and clothes washers.

- Collect and compile data on market penetration for installation of devices or BMPs where CII or regulatory water use efficiency standards exist.

- Develop a full-spectrum, water-centric, water use standardized classification system of customer categories. This classification system should include consistent use of the North American Industry Classification System (NAICS) codes and assessor parcel numbers (APNs).

- Develop a system and implementation plan for water production, delivery, and use data collection for classification; and for reporting and tracking at the user, water supplier, state, and federal levels.

- Where norms or ranges are available, CII establishments should compare their metrics to those norms and use metrics to improve and track their water use efficiency over time.

Recycled Water and Alternative Supplies

The following actions should be taken to encourage more aggressive use of recycled water and alternative water supplies by CII businesses:

- Improve regulatory and statutory requirements to overcome barriers to potable and non-potable recycled water use in a manner that is protective of public health and water quality.

- Encourage the State Building Standards Commission to consider national and international codes and to 1) periodically update and expand the plumbing code, and 2) address alternative water supplies.

- Encourage financial and technical assistance to increase recycled and alternative water use.

- The CEC should consider allowing offsets for the use of recycled water at power plants. Under an offset program, where it is not feasible to use recycled water at a power plant, a power plant operator would be allowed to provide funding to expand recycled water at another location.

Legislative Opportunities

Opportunities for State legislation in assisting implementation of the CII Task Force BMPs and other recommendations include:

- Provide the State with a mechanism and the authority for collecting detailed water use data in the private and public agency sectors for the purpose of tracking the progress of statewide CII sector water use and implementation of this report's CII BMPs and recommendations. This can be reported back to the legislature and assist DWR quantifying urban water use for the CA Water Plan Update.

- Provide support and State funding for the implementation of recommendations in this report including: water conservation programs

and recycled water projects commensurate with benefits to the State and to overcome financial barriers toward expanded use of recycled water.

- Improve statutory requirements as appropriate to overcome barriers to potable and non-potable recycled water use in a manner that is protective of public health and water quality.

- Promote updates to the plumbing code which encourages development and use of alternative water supplies and implementation of cost-effective BMPs.