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To: [DWR Water Use Efficiency](#)
Cc: eosann@nrdc.org; hcooley@pacinst.org; [Quinn, Tracy](#); [Johnson, Katiana](#); sara@cacoastkeeper.org
Subject: Comments for M.Cubed report, Draft 2, August 30, 2016
Date: Wednesday, October 19, 2016 1:38:02 PM
Attachments: [Mitchell Rept- NRDC and Pacific Institute- Final Comments.pdf](#)

Department of Water Resources and the State Water Resources Control Board,

The Natural Resources Defense Council (NRDC) and the Pacific Institute appreciate the opportunity to provide comments to the Department of Water Resources (DWR) and the State Water Resources Control Board (SWRCB) regarding the development of new water use targets as part of a permanent framework for urban water suppliers, as called for in Governor Brown's Executive Order B-37-16.

Please see attached for our comment.

Thank you very much,

SUSAN LEE
Program Assistant

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October 19, 2016

Submitted via email to WUE@water.ca.gov

RE: M.Cubed report: *Projected Statewide and County-Level Effects of Plumbing Codes and Appliance Standards on Indoor GPCD*, Draft 2, August 30, 2016

To: Department of Water Resources and the State Water Resources Control Board

The Natural Resources Defense Council (NRDC) and the Pacific Institute appreciate the opportunity to provide comments to the Department of Water Resources (DWR) and the State Water Resources Control Board (SWRCB) regarding the development of new water use targets as part of a permanent framework for urban water suppliers, as called for in Governor Brown's Executive Order B-37-16.

We are writing to urge caution in the use of the above-captioned report by M.Cubed for the establishment of urban water use targets. While we are supportive of the modeling *approach* as a way to develop a future baseline for reductions in per capita water use due to standards and codes, we are concerned about some of the assumptions used in the modeling. Specifically, having each reviewed the report, we strongly object to its assertion (on p. 28) that 59 gpcd is representative of residential indoor per capita water use in California for 2015. While the report contains a substantial amount of modeled calculations, it should be noted that the 59 gpcd figure was not the product of M.Cubed modeling efforts; rather, it was taken directly from a national Water Research Foundation (WRF) study, *Residential End Uses of Water, Version 2* (REU2016).¹ REU2016 was based on data from 2010 and 2013 for single-family residential households across the country, with many eastern sites. Indeed, no California utility service areas were surveyed in the field to generate this estimate. California's indoor per capita use is likely lower than national levels because the state has more stringent efficiency standards and water suppliers have been promoting efficiency standards for several decades.

We believe that development of the indoor standard baseline should be informed by current per capita water use estimates for California and estimates of the rate at which per capita use is likely to decline due to the adoption of efficient appliances and fixtures. Several state and national studies can help inform these discussions:

¹ DeOreo, W.B. et al. 2016. Residential End Uses of Water, Version 2. Denver, CO: Water Research Foundation.

- A recent California study can help inform selection of baseline water use. Data for the *California Single-Family Water Use Efficiency Study* (2011) were collected between 2005 and 2010, with the bulk of the data collected between 2005 and 2008. According to these data, California's indoor per capita water use averaged 59 gallons per person per day (gpcd) during this period.
- Two studies by the Water Research Foundation provide information on per capita use trends: Residential End Uses of Water, Version 1 (REU1999) and REU2016. Both studies were based on flow-trace monitoring of homes across the United States. Data for REU1999 were collected between 1996 and 1998, while those for REU2016 were collected between 2010 and 2013. The studies found that average indoor per capita water use declined by 15% over a 15-year period, from 69 gpcd (REU1999) to 59 gpcd (REU2016). This suggests that indoor per capita water use declined by 1% annually due to the uptake of more efficient appliances and fixtures.

Based on these studies, we conservatively estimate that indoor per capita use in California in 2008 was 59 gpcd. If we assume that indoor per capita use declines by 1% per year, we would expect indoor per capita use to decline by 7% over a 7-year period, which is equivalent to 55 gpcd by 2015.

There are other shortcomings in the M.Cubed report that we note in the attached table. Most of these have the effect of understating the level of residential water efficiency that is occurring in California today. However, our overarching concern is the misapplication of the REU2016 national average as indicative of California residential water use in 2015.

We respectfully request consideration of these concerns. We look forward to working with both agencies to fully implement Governor Brown's May 2016 executive order.

Sincerely,



Edward Osann
Senior Policy Analyst, Water Program
Natural Resources Defense Council

A handwritten signature in black ink, appearing to read 'H. Cooley', with a large, stylized flourish at the end.

Heather Cooley
Water Program Director
Pacific Institute

Attachment

Attachment

Additional Concerns Regarding Projected Statewide and County-Level Effects of Plumbing Codes and Appliance Standards on Indoor GPCD, Draft 2

Page	Device	Comment
4	Clothes washers	Fails to consider the federal water factor of 9.5 first effective in 2011; Fails to consider additional revisions to standards for commercial washers effective 2018; Relies upon Energy Star unit shipment data from 2011, when shipment data for each year through 2015 are now available.
6-7	Showerheads and faucets	Fails to account for California state standards adopted in 2015 that are significantly more stringent than either federal minimum standards or EPA WaterSense specifications.
9-10	Toilets	The model assumes no HETs were added to the housing stock until 2014, even though the WaterSense HET specification for tank-type toilets was adopted in 2007 and had captured half of US market by 2010,* and that California law (AB 715) required 50% of all models sold to be HET in 2010, with increasing shares of HETs each year through 2014.
12-13	Clothes washers	Analysis poorly integrates purchases of Energy Star qualified washers in increasing shares (and increasing efficiency) between 2005 and 2017.
15	Clothes washers	Models clothes washer capacity of 3.5 cu ft although the average capacity of new residential washers has grown substantially higher.

* US EPA, WaterSense Labeled Product Market Data, October 25, 2012.