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California Energy Commission

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Delivered via email to: [docket@energy.ca.gov](mailto:docket@energy.ca.gov)

California Energy Commission  
Dockets Office, MS-4  
Re: Docket No. 14-AAER-1  
1516 Ninth Street  
Sacramento, CA 95814-5512

RE: CEC DOCKET NO. 12-AAER-2C, FAUCETS, TOILETS, and URINALS

Thank you for this opportunity to comment on the CEC's Water Appliance Efficiency program. I believe it is critical to aggressively address California's current serious drought, and support the careful examination of all options to increase California's water use efficiency. I encourage the Energy Commission to adopt plumbing standards that are supported by the examination of the full effects on the entire plumbing system, including potential public health issues.

The plumbing fixtures that are being regulated are installed in a plumbing system. Some of these systems are relatively old; some will be brand new. The California Plumbing Code has not and does not easily allow plumbing engineers, plumbers and inspectors to account for piping that is sized for the plumbing fixtures that are currently required by law, let alone for those that are being proposed by this regulation. In fact, no changes have been made to pipe sizing criteria since before the Federal regulations regarding plumbing fixtures went into effect in the mid-1990s. This leads to some unintended consequences:

1. Greater retention time in the supply piping within the building and in the municipal water system providing water to that building. Municipalities may need to adjust their dosing of chemicals that inhibit the grow of pathogens.
2. Increased time-to-tap for hot water plumbing fixtures. As an example, reducing the flow rate from 2 gpm to 1 gpm more than doubles the time it takes for hot water to arrive. This is due to lower velocity water giving up more heat to the piping. The additional time translates into more wasted water that came through the water heater. There is embedded energy attached to the supply and treatment of this additional wasted water.
3. Less water in the waste piping within the building and in the municipal waste treatment system. Municipalities may need to provide additional water to flush the drain lines.

Since the Title 20 regulations apply to plumbing fixtures in both existing and new buildings, I recommend that the Energy Commission listen carefully to the water use efficiency industry that lives with the unintended consequences of systemic interactions due to regulations of individual components. At this time, most of this industry has agreed on the performance requirements in the current EPA Water Sense program.

It is possible to demonstrate the unintended consequences in a controlled setting. Bringing together interested parties to participate in such demonstrations would go a long way in helping everyone become more comfortable with the decisions that are being proposed. This venue may be particularly helpful for making changes to the California codes that address new construction. If the Energy Commission is interested in such demonstrations, please let me know.

Thank you again for this opportunity to contribute to the process.

Sincerely;

Gary Klein  
Managing Partner