

2016 Title 24 Code Change Advocacy

Request for Input:

Gas Savings for Nonresidential Buildings

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April 2014

Introduction

The California Investor Owned Utilities (IOUs) are actively supporting the California Energy Commission in updating the California Building Energy Efficiency Standards (Title 24). Their joint intent is to achieve significant energy savings through the development of reasonable, responsible, and cost-effective code change proposals for the 2016 code update and beyond. Through Codes and Standards Enhancement (CASE) Reports, the IOUs will provide the Energy Commission with the technical and cost-effectiveness information required to make informed judgments on proposed standards for promising energy efficiency design practices and technologies.

This Request for Input provides an opportunity for stakeholders to help inform the development of these codes change proposals. The IOUs encourage participation in this step of the process through the submission of data— both primary sources and references to existing data, e.g., reports, spreadsheets, etc. Information received will help inform the IOU's code change proposals and the CASE Reports. Further opportunities to provide feedback regarding these code change proposals will follow this Request for Input.

How to submit responses:

Please submit responses to the questions presented below by Friday, May 16, 2014 to: info@title24stakeholders.com.

Summary of Potential Code Change Proposal

The purpose of the proposed measures is to reaffirm Title 24, also known as the Building Energy Efficiency Standards, to meet or exceed energy efficiency levels that are already established by other recognized standards; primarily the 2013 edition of ASHRAE 90.1 standard. The measure is intended to enhance the efficiency of gas equipment. The proposed code change will raise the minimum efficiencies of Title 24 to put it on par with other standards.

Boiler Efficiency

Boiler and steam generator technology efficiencies are already regulated by Title 24. Water heater technology efficiencies are regulated by Title 20 under Appliance Efficiency Regulations. This measure is being proposed to ensure that Title 24 efficiencies are equal to or greater than those required by the 2013 ASHRAE 90.1 Standard and the Code of Federal Regulations.

Currently for gas-fired boiler minimum efficiencies, Title 24, ASHRAE 90.1 and the Code of Federal Regulations are exactly the same. However for ASHRAE 90.1 and the Code of Federal Regulations, they have scheduled increases for minimum efficiencies in the years 2020 and 2022, respectively. These increases apply to a single equipment type: gas fired - natural draft steam boilers.

Table A, below, lists the current boiler efficiencies for gas fired natural draft steam boilers.

Table A - Current Boiler Efficiencies for Title 24, ASHRAE 90.1 and the Code of Federal Regulations

Equipment Type	Sub Category	Size Category	Title 24 Efficiency - effective 2014	ASHRAE 90.1 Efficiency - effective 2010	CFR Efficiency - effective 2012
Boilers, Steam	Gas fired - natural draft	$\geq 300,000$ Btu/h $\leq 2,500,000$ Btu/h	77% E _t	77% E _t	77% E _t
Boilers, Steam	Gas fired - natural draft	>2,500,000 Btu/h	77% E _t	77% E _t	77% E _t

In order for Title 24 to be consistent with both ASHRAE 90.1 and the Code of Federal Regulations, the proposed measure will update Title 24 *Table 110.2-K Gas- and Oil-Fired Boilers, Minimum Efficiency Requirements* to match the new boiler efficiency levels. Table B, below, lists the efficiency increases necessary for Title 24 to be consistent with the other standards.

Table B - Increased Boiler Efficiency for Title 24, ASHRAE 90.1 and the Code of Federal Regulations

Equipment Type	Sub Category	Size Category	Title 24 Efficiency - effective 2017	ASHRAE 90.1 Efficiency - effective 2020	CFR Efficiency - effective 2022
Boilers, Steam	Gas fired - natural draft	$\geq 300,000$ Btu/h $\leq 2,500,000$ Btu/h	<u>79% E_t</u>	79% E _t	79% E _t
Boilers, Steam	Gas fired - natural draft	>2,500,000 Btu/h	<u>79% E_t</u>	79% E _t	79% E _t

When developing the proposal, the CASE Team will consider how enhanced boiler efficiencies could be incorporated into the code without sacrificing cost-effective energy conservation, energy efficiency, and demand response strategies.

Questions for Interested Parties

The IOU Codes and Standards Team (IOU CASE Team) is requesting feedback on the specific questions listed below. Answers to these questions will inform the cost-effectiveness analysis, energy savings estimates, environmental impacts, and market impacts that will be presented in CASE Reports.

Please check all that apply to you:

- Building Designer
- Building Owner
- Building Inspector
- Building Contractor
- Boiler Manufacturer
- Boiler Industry Consultant
- ASHRAE Member
- Other: _____

What fraction of your business is serving the California nonresidential market? _____

1. What is the typically thermal efficiency of natural draft gas boilers for steam production? What is their size?
2. What is the incremental cost of natural draft gas boilers for steam production that are 79% thermal efficient versus 77% thermal efficient?
3. Is there a difference in installation cost for natural draft gas boilers for steam production that are 79% thermal efficient versus 77% thermal efficient?
4. Does the installed cost vary by building type? For example, is it inherently more expensive to install a boiler in an office building, mixed use building, warehouse, school, etc.?
5. How does the installed cost of a system vary by system size?
6. What is the annual operation and maintenance (O&M) costs of a natural draft gas boiler for steam production that has 79% thermal efficient?
7. How do annual O&M costs change over time? For example, does O&M become more expensive as systems age?
8. Is there a difference in O&M costs for natural draft gas boilers for steam production that are 79% thermal efficient versus 77% thermal efficient?
9. Will annual O&M costs change between now and January 1, 2017?
10. How many natural draft gas boilers for steam production with 77% thermal efficiency are sold in an average year? What is their size?
11. Are there any reasons why this measure should not be implemented?