2016 Title 24 Code Change Advocacy

Request for Input:

Thermally Driven Cooling

May 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 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 below by Friday, June 6, 2014 to: info@title24stakeholders.com.

Summary of Potential Code Change Proposal

This potential new code change affects newly installed thermally driven chillers where the cooling effect is driven by heat rather than mechanical compressors. The heat source could be solar thermal, waste heat, or a combination. The waste heat could be process heat, cogeneration, or other sources. Absorption chillers are the most common form of thermally driven chillers and have been available for over 50 years. A number of manufacturers currently offer a variety of absorption chillers. Another form of cooling that makes use of waste heat is desiccant cooling. Desiccants are used to remove water vapor out of an air stream and waste heat is used to regenerate the desiccant so it is ready to absorb more water vapor. The dried air is then evaporative cooled.

This potential change would offer a Title 24 compliance credit for the performance (whole building simulation energy trade-off) approach when cooling spaces with a thermally driven chiller. This is neither a prescriptive requirement nor a mandatory requirement and does not affect the base case budget of the performance approach. This change would allow some nonresidential and high-rise multifamily buildings to take credit for the presence of a heat recovery chiller.

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 energy savings estimates, cost-effectiveness analysis, environmental impacts, and market impacts that will be presented in the CASE Report.

Please tell us a little about yourself:

Please check all that apply to your current job description:

____ Architect, ____ Mechanical engineer, ___ HVAC equipment manufacturer,

____ Building inspector, ____ Other (please describe) _____

What fraction of your business is in the California market? _____

1. How will a computer simulation credit for absorption chillers or desiccant cooling impact your business?

2. How frequently are absorption chillers installed in California?

3. How frequently are desiccant cooling systems installed in California?

4. Please describe typical applications and configurations.

5. Can you estimate the approximate market share (%) of thermally driven chillers compared with conventional vapor compression chillers for new installations?

6. Do you see this installation rate as stable, increasing, or decreasing in the future?

7. What are some of the disadvantages? Why are they not installed more often?

8. What tools do you use for simulation or prediction of the performance of absorption chillers?

9. What tools do you use for simulation or prediction of the performance of desiccant cooling?

10. Have you used EnergyPlus for modelling absorption chillers? What comments do you have on ease of use, ability to model various equipment types, accuracy etc?

11. Have you used EnergyPlus for modelling desiccant cooling? What comments do you have on ease of use, ability to model various equipment types, accuracy etc?

12. Are you aware on any studies that compared measured results with simulations of absorption cooling or desiccant cooling that you think might be useful for evaluating the accuracy of various simulation methods?