

DOCKETED

Docket Number:	17-BSTD-02
Project Title:	2019 Title 24, Part 6, Building Energy Efficiency Standards Rulemaking
TN #:	222891
Document Title:	CEC Title 24 Express Docket Comments No 17 BSTD 02 3.5.18
Description:	N/A
Filer:	System
Organization:	SkyCentrics/Tristan
Submitter Role:	Public
Submission Date:	3/5/2018 4:48:30 PM
Docketed Date:	3/5/2018

Comment Received From: Tristan

Submitted On: 3/5/2018

Docket Number: 17-BSTD-02

CEC Title 24 Express Docket Comments No 17 BSTD 02 3.5.18

Additional submitted attachment is included below.



SkyCentrics

214 Grant Ave, Ste 325
San Francisco, CA 94108

March 5, 2017

California Energy Commission
Docket Unit, MS-4
Re: Docket No. 17-BSTD-01
1516 Ninth Street
Sacramento, California 95814-5512
Docket@energy.ca.gov
adrian.ownby@energy.ca.gov

Re: Proposed Changes to the Building Energy Efficiency Standards in the California Code of Regulations, Title 24, Part 6 – “Title 24-2019 45 Day Express Terms and February Public Hearings [Docket No. 17-BSTD-02]”

What follows is the submission by the SkyCentrics Corporation (“Company”) in response to the Proposed Changes to the Building Energy Efficiency Standards in the California Code of Regulations, Title 24, Part 6 – “Title 24-2019 45 Day Express Terms and February Public Hearings [Docket No. 17-BSTD-02]”.

The Company, provides hardware and SaaS based building management services to residential and commercial customers. The Company is also one of the primary CTA-2045 module makers in the United States, with a history of providing services testing, implementing, and servicing the CTA-2045 standard with the brand name OEMs making devices and appliances in the standard, including A. O. Smith, Mitsubishi, IslandAire, Siemens, Emerson White-Rogers, as well as other supporters and implementers of the standard, such as EPRI, NYSERDA, Pacific Northwest National Lab, and a number of utilities and electric cooperatives working with the CTA-2045 standard to send ‘grid event signals’ to electric loads in their service territories, including, for example, Con Edison and Jackson EMC. It is with this experience as a communications, sensor and controls technology provider that we appreciate having the opportunity to comment on the California Energy Commission’s (“Commission”) proposed changes under Title 24, Part 6 of the California Code of Regulations regarding building energy efficiency standards.

Overview

In general, the Company is pleased to see that the Commission has with its proposed amendments to 2019 edition of Title 24, Part 6, embraced a more technology neutral approach as it relates to domestic water heating control technologies. More broadly it is also supportive of the Commission’s focus on promoting energy efficiency in the built environment. It is also worthy to note that

www.skycentrics.com
Tel: 415.962.1500
Fax: 415.962.1504

taken as a whole, the proposed amendments are consistent with the Commission's broader initiatives relating to zero-net-energy (ZNE) buildings, reducing pollution and carbon emissions, improving energy security, reducing consumption of imported fuels and nonrenewable resources, maximizing the benefit provided by California's energy infrastructure and minimizing the need for additional energy infrastructure spending.

Two specific examples include the new requirement that all newly constructed low-rise residential buildings have solar photovoltaic systems ("solar PV") as well as the addition of highly efficient heat pump water heaters as a compliance option for both new construction and in replacement applications. Another example includes the ability to pair solar PV systems with on-site battery storage.

However, notwithstanding these examples, the proposals addressing domestic water heating continues a pattern from the Commission that advantages the utilization of tankless and/or compact distribution water heating systems over highly efficient storage tank technology. These technologies, while being appropriate and the 'best choice' in certain environments, have much less if any benefit to the emerging 'grid of the future,' where energy storage, including thermal storage, at scale will be required.

The Company has maintained a fundamental position that the customer should make the ultimate decision on what type of water heating system and communications technology is appropriate for their circumstances as opposed to regulations making that choice for them. The Company continues to be puzzled by Commission's continued actions to structure its building standards to advantage a specific technology that is manufactured overseas, while placing domestic manufacturers at a disadvantage. And more importantly, the Commission seems to be advantaging technologies that provide MUCH less thermal storage benefits to the grid, which seems to contradict the aforementioned broader policy goals of the Commission and the State of California.

Mandatory Features and Devices – Section 150.0

150.0(n)(1)(A)

The Company is supportive of clarifying that a dedicated outlet be installed closer to the water heater. This action will assist in the transition and installation of water heating equipment that contains more advanced electronic controls, as well as allowing for future upgrades within a home to higher efficiency water heating equipment in the future.

150.0(n)(1)(D)

While the requirement to install a gas supply line with a capacity of at least 200,000 Btu/hr is not a new requirement under the 2019 amendments, the provision is yet another example of a requirement that on its face advantages the installation of gas tankless water heaters. The size of a gas supply line, and the cost associated with its installation, should be made by the homeowner in conjunction with the builder. California's building code should not continue to force all homeowners to subsidize the costs of installing a 200,000 Btu/hr gas supply line in homes.

We do not understand this requirement, particularly in light of the Commission's ZNE requirements. We have the experience working with a number of 'greenfield' development projects in CA where they were very close to considering NOT having to install any gas lines to projects with over 500 homes. As you can imagine, this would (a) reduce the cost of the development, and (b) help California move to a lower carbon footprint future, sometimes referred to as 'decarbonization', both of which the Commission should find valuable. Again, it seems as if through this measure, the Commission is contradicting its broader policy goals.

Performance Requirements – Sections 150.1*150.1(b)(1)*

Under this Section, an offset is granted to the required solar electric generation system Energy Design Rating to a permitted building if there is an approved community shared solar electric generation systems ("community solar"), or other renewable electric generation system paired with on-site battery storage. While the Company agrees with commenter Air-Conditioning, Heating, and Refrigeration Institute ("AHRI"), that thermal storage systems should receive parity with battery storage systems, the Company encourages the Commission to adopt a proposed specification for the utilization of grid-interactive electric water heating for load management to the 2019 amendments as outlined by commenter National Resources Defense Council ("NRDC"). Under the NRDC proposal, an electric water heating system could qualify for water heating load management credit(s) available in the compliance option for electric water heating systems using either resistive or heat pump technologies with load management and daily load shifting capabilities. Similar to other grid-interactive electric water heating load management systems in other parts of the country, this functionality would help lower customer utility bills, maximize solar self-utilization, and provide grid harmonization services to California's diverse utility grid. This would also enable future benefits to the grid which would allow more intermittent renewable energy to be used in California.

Prescriptive Requirements – Section 150.1

150.1(c)8.A(i, iii, and iv)

Under the this Section the Company is generally supportive of the inclusion of electric heat pump water heaters (“HPWH”) being added as compliance options, however it is unclear as to the legality of requiring the pairing of those products with solar PV systems in newly constructed low-rise buildings. Moreover, considering the Commission’s proposed amendment requiring that *“all low-rise residential buildings shall have a photovoltaic (PV) system meeting the minimum qualification requirements as specified in Joint Appendix JA11, with annual electrical output equal to the dwelling’s annual electrical usage”* (See 150.1(14)) the Company is unclear why the Commission would require that a HPWH be tied to a solar PV system in certain Climate Zones. Requiring the pairing of the two technologies may add additional costs associated with installation of the HPWH, which could be a deterrent for builders and disadvantage HPWHs which the Commission has recognized is a highly energy efficient water heating technology solution for consumers. The Company believes that would be the wrong signal to send to the marketplace. In addition, the Company is unclear why the requirement is also modified by the word “single” when in the amendment to 8(A)(i) the Commission modifies /contemplates *“One or more”* tankless water heaters. This is another example of the Commission sending a market signal through the building code that advance the interest of one technology over another. The Company would recommend that the Commission eliminate the pairing requirement for HPWHs and solar PV systems in all Climate Zones.

150.1(c)8.A(ii)

Under this Section the Company questions both the legality of the proposed amendments as well as the policy rationale underlying it. Pursuant to the comments submitted by the Bradford-White Corporation as well as AHRI, the Company does not support the Commission’s proposal to eliminate from commerce in the State of California, gas or propane storage water heaters with inputs of 105,000 Btu per hour or less and rated storage volumes of less than 55 gallons. On its face this amendment is a quintessential case of the Commission taking consumer choice away and advancing one technology (e.g. tankless) over tank type water heaters. There are numerous highly efficient gas and propane water heaters below 55 gallons that fit the needs of many families in California.

Also, when approached holistically within the need for California to transition to a renewable, low carbon future, these water heaters with thermal storage may provide unique and yet to be fully quantified value propositions to the grid. We believe that it is too early to rule out these holistic benefits, especially since to date, so few water heaters have been ‘connected.’ Given the Commissions’ wisdom in now encouraging connected water heaters and other appliances, the Company believes that the Commission should give time for

these appliances to be installed in California, and allow more of these value propositions to be determined and evaluated before preventing their installation entirely.

While the Commission rests its justification for this amendment on the Quality Insulation Installation (QII) requirement for all new low-rise buildings, that in no way justifies the prohibition of selling a certain category of water heating equipment that is compliant with federal law. The Company would recommend that the Commission simply eliminate the gallon size restriction.

In addition to the Section's requirement as discussed above, the insertion of new criteria by which a storage tank water heater must comply versus a tankless water heater is yet again another example of a structural (i.e. code) provision that advances the interest of one technology over another. Under the proposed amendment, storage tank water heaters would have additional installation requirements whereas tankless water heaters would not. As the Commission knows, compact hot water distribution systems, as defined in the Reference Appendix, have a bias toward point-of-use (i.e. tankless) hot water solutions given piping length restrictions. While a builder could certainly design a compact system that utilizes a storage tank water heater – and some may – taken together with other elements of Title 24 what incentive(s) do they have to do so? In addition, the amendment's option regarding hot water piping insulation is equally curious given the Commission's proposal under Section 150.0(j) regarding all piping insulation on cold water (from a storage tank) and hot water lines. If insulation is required why is this option under (ii)? Lastly, and perhaps more confounding is the option to utilize a drain water heat recovery system (DWHR). The Company is well aware, and well versed on DWHR systems, which are a promising technology that admittedly advance the interests of greater efficiency. However, this is a nascent technology, and given the Commission's own findings on the number of installations in the State, it does not appear to be appropriate to include this option at this time in the 2019 amendments.¹ In addition, the CASE Report addresses a number of potential impediments to the technology's adoption least of which is ensuring that that the State's "greywater" regulations are harmonized with the proposed DWHR proposal and that statewide energy savings on the proposal were not calculated.² Finally, the Company would observe that it could not find in the record of the Docket a single instance explaining why DWHR recovery systems should not be applied to tankless water heating systems. As commenter Bradford-White has pointed out, is the hot water draining from fixtures serviced from a tankless water heater less important than the hot water from a storage tank water heater? Again, this

¹ See Drain Water Heat Recovery Requirement – CASE Final Report, July 2017 (Measure Number: 2019-RES-DHW2-F, p. 9

² *Id.* at p. 3 - 5.

appears to be another example of a structural (i.e. code) provision that advances the interest of one technology over another and that may have the unintended consequence of advancing tankless water heating systems that would not be able, or required, to harvest drain heat recovery (counter to the policy rationale of the proposed option) not to mention exacerbate the State's water scarcity issues by advancing a technology that wastes more water versus a storage tank water heater. It is for these reasons that the Company recommends that the DHWR system compliance option be removed.

Prescriptive Requirements – Section 150.2 - Additions and Alterations

150.2(b)(1).H

Consistent with the Company's comments above, as well as other commenter AHRI, the Company recommends that the Commission decouple the water heater from the solar PV system requirements. HPWHs should stand on their own given the technology's inherently high energy efficiency savings for consumers.

150.2(b)(1)H.(iii)(d)

Under this Section the Commission is proposing that electric resistance "only" storage type water heaters be restricted to products that are less than or equal to 60 gallons. As the Commission knows under current federal law electric resistance storage water heaters greater than 55 gallons are prohibited in commerce unless the water heater meets the federal definition of a grid-enabled water heater. While the Company infers from the proposals use of the modifier "only" that electric resistance storage type grid-enabled water heaters would be allowed under the amendment, the Company recommends that the Commission seek to clarify this by simply referencing the applicable federal law covering these products.

Demand Response – Section 110.12(a)

As a Company that is leading the way in advancing grid-interactive water heating and hydronic systems, it is supportive of the Commission's recommendation on demand response and load management. However, the Company urges the Commission to ensure that in any ensuing final amendments that a technology neutral approach is taken regarding communication protocols for connected devices and appliances. While this may, and certainly should, include OpenADR 2.0(a) and (b), it should also include protocols like CTA-2045, which is being implemented by manufacturers, utility partners, and third-party aggregators. In addition, the Company would urge the Commission to more clearly delineate which buildings are covered under the requirement. Lastly, and consistent with the comments submitted by NRDC proposing a specification for compliance credits for the utilization of grid-interactive electric water heating for



SkyCentrics

214 Grant Ave, Ste 325
San Francisco, CA 94108

load management to the 2019 amendments, it becomes more imperative that the Commission clarify the scope, technology, and applicability of Section 110.12.

Conclusion

In its overview of its 2019 amendments the Commission states that *“the benefits anticipated from adopting these amendments to Title 24 Part 6 support a myriad of State policy goals, including goals of improving California’s economy, reducing pollution and carbon emissions, improving energy security, reducing consumption of imported fuels and nonrenewable resources, maximizing the benefit provided by California’s energy infrastructure and minimizing the need for additional energy infrastructure spending”*. It goes on to describe the important role that energy efficiency plays in meeting these stated goals. Our Company agrees with the Commission regarding the role that energy efficiency plays in meeting the State’s policy objectives. However, and as discussed above, the Commission can achieve its stated objectives and goals while at the same time provide a level playing field for domestic water heating and hydronic equipment manufacturers and their controls technology partners. The Company’s recommendations, along with those of other similarly situated manufacturers and interested commenters, reflect a consensus on how, we could work with the commission to achieve those goals.

Once again, the Company appreciates the opportunity to provide its comments and stands ready to work with the Commission moving forward.

Sincerely,

A handwritten signature in black ink, appearing to read "Tristan de Frondeville", with a long horizontal line extending to the right.

Tristan de Frondeville
CEO
(415) 962-1505
Tristan@skycentrics.com