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Commissioner Andrew McAllister
Lead Commissioner
Docket No. 17-BSTD-02
Attn: Dockets Office, MS-4
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814-5512

RE: Docket No. 17-BSTD-02: Comments of Nest Labs on 45-day Language

Dear Commissioner McAllister:

Nest Labs ("Nest") appreciates the opportunity to offer these comments on the 45-day language published in the 2019 Building Energy Efficiency Standards ("Standards") rulemaking (Docket 17-BSTD-02). Nest has been an active participant in the promulgation of the Standards, participating in numerous state and federal initiatives to advance energy efficiency programs. Nest remains committed to being an active participant with the Commission and all stakeholders.

With respect to the Commission's 2016 Standards, Nest has self-certified its thermostats as Occupant Controlled Setback Thermostats ("OCSTs") for residential and nonresidential uses, consistent with the 2016 Standards and Joint Appendix 5 ("JA5"). Nest has also certified these same thermostats under the new ENERGY STAR Program Certified Smart Thermostat specification, confirming that these Nest Thermostats also meet EPA's energy savings criteria.

Nest's comments on the 45-day language are focused primarily on new section 110.12(a), which states, in pertinent part:

> Buildings, other than healthcare facilities, shall comply with the applicable requirements of Sections 110.12(a) through 110.12(d).
>
> **(a) Demand responsive controls.**
>
> 1. All demand responsive controls shall be ~~capable of functioning as~~ an OpenADR 2.0a or OpenADR 2.0b Virtual End Node (VEN), as specified under Clause 11, Conformance, in the applicable OpenADR 2.0 Specification.
>
> ….
>
> 4. Demand responsive control thermostats shall comply with Reference Joint Appendix 5 (JA5), Technical Specifications For Occupant Controlled Smart Thermostats ~~Residential thermostatic controls within the scope of NEMA DC 3 2013 shall include labels that comply with NEMA DC 3 2013.~~

This newly-proposed section would seemingly require all demand responsive controls, including OCSTs, to be an OpenADR 2.0a or 2.0b VEN capable of responding directly to a utility signal. As drafted, OpenADR would be "Mandatory OpenADR," i.e., all demand responsive controls would have to include OpenADR in the device.

Mandatory OpenADR represents a *significant* departure from current law and regulation that is not supported by either sound public policy or the record in this proceeding. The proposed changes may also stifle innovation in demand response.

Nest understands that the Commission is focusing on Mandatory OpenADR, in part, because of consumer protection concerns. Nest shares this common interest in consumer protection. Without customer confidence, there is no demand response market. As explained below, the proposed Mandatory OpenADR is not necessary to ensure the continuing protection of consumers and may, in fact, open the door to other significant consumer and policy concerns.

Section I below explains how existing safeguards, unrelated to Mandatory OpenADR, will continue to protect consumers. Section II demonstrates Mandatory OpenADR does not recognize the leading demand response market structure, including "aggregators" of demand response, threatening to stifle innovation and demand response as a tool for managing California's emerging market. Section III explains that the current Commission record in this proceeding does not support a Mandatory OpenADR requirement. Section IV then offers compromise language that will both allow the Commission to advance OpenADR while protecting, preserving, and enhancing the current Standard's flexibility necessary to allow California's emerging demand response markets to thrive. Section V discusses our support of the energy efficiency strides made by the Commission proposed revisions to JA5, and suggests added text in furtherance of the Commission's energy efficiency mission.

I. ECONOMIC, REGULATORY, AND LEGAL CONSUMER PROTECTIONS ENSURE THAT THERE WILL BE NO "STRANDED" DEMAND RESPONSIVE CONTROL DEVICES

For Nest, consumer protection is paramount. While Nest appreciates that there is a hypothetical risk that demand responsive controls could be "stranded" if those devices are no longer able to respond to a demand response signal, consumers are protected by a robust and interlocking system of economic, regulatory, and legal defenses that are either built into, or inherently exist, in California's developing demand response markets. Foisting Mandatory OpenADR on these emerging markets for demand responsive devices stifles innovations and fails to recognize these important existing safeguards.

Therefore, as a threshold matter, Nest respectfully challenges the premise that stranding can or will occur for demand responsive control devices without Mandatory OpenADR. Demand control devices are not being stranded as a result of their proprietary communications protocol, normally referred to as the "API" (application programming interface). There are very good reasons why, and real-world experience demonstrates, that the risk of stranding demand responsive controls is theoretical only.

A. The Economic Value of Proprietary Communications Systems Provides Consumer Protection

The proprietary communications protocols of any demand responsive device producer are among the most important and valuable assets for that company. The development, maintenance, and updating of communications protocols for demand responsive devices requires thousands of person-hours by teams of highly-trained and highly-skilled engineers. Those thousands of hours represent significant investment in human resources and capital. The goals of such investments include, among other things, the development of communications protocols that are effective and contribute to effortless delivery of the energy efficiency services consumers want and deserve. Communication programs must also be built and updated so that they deliver a service through a system that cannot be "hacked" or otherwise subjected to cybersecurity threats.

As a substantial investment in time, money, and resources, these communication protocols are valuable assets. All companies have a "fiduciary duty" to protect the value of their assets, including proprietary communications programs. Failure to use a communications protocol after the substantial investments made would be a serious breach of a company's fiduciary duties.

B. Consumer Protections Against Stranding of Demand Responsive Devices Are Provided by the Law, Even in Bankruptcy

If a company were to go out of business, for whatever reason, the legal system protects against stranding of demand responsive control devices. This is true whether the dissolution of the business is voluntary or involuntary.

In the case of voluntary dissolution of a company, the company's board of directors would still have the fiduciary duty to the company's owners to maximize the value of the company's assets. This would include selling all company assets, including a company's intellectual property, like a communications protocol. Through the voluntary sale, the proprietary assets would then be available to others in the market. The voluntary sale would mean the new buyer would take the communications protocol "subject to" the selling company's obligations, including participating in utility demand responsive programs. Such a sale would be virtually invisible from the consumers prospective.

In the case of involuntary dissolution of a company, such as bankruptcy, the trustee in bankruptcy (or other trustee or fiduciary) has the same fiduciary obligations as the company directors in a voluntary sale – i.e., maximize the value of corporate assets. These fiduciary responsibilities would include, among other duties, the selling the company's communications protocols in the bankruptcy or other dissolution proceedings.

For simple economic reasons, there is no risk – other than a theoretical one – that a company's communication protocol would not be available to some market entity under all circumstances. As a valuable asset, a communications protocol might change hands, but it

would not be stranded or lost as long as it has any value or use in delivering a demand response service.

C. Consumers Indirectly Benefit from the Contractual Relationship Between the Device Company and the Aggregator

In many demand response programs, a demand responsive device producer has contracted with an aggregator, or an entity that provides a distributed energy resources management system ("DERMS") service, to access these devices for energy savings. Pursuant to the contract, the aggregator or DERMS will have access to and use the device's existing API when sending a demand signal to the device.[1] If the device company were to dissolve, the aggregator or DERMS would continue to have the ability to communicate with the device using that device's existing API. In this scenario, the consumer indirectly benefits from the contractual arrangement between the device company and the aggregator or DERMS. As discussed below, the energy provider-aggregator-device relationship is the direction the demand response market is moving in California and across the country.

D. Consumers Are Protected By Regulatory and Market Checks and Balances, Including Demand Response Programs Administered by Elected and Appointed Boards and Commissioners

There are additional regulatory and market checks and balances that prevent the stranding of assets. In addition to the Commission's thoughtful oversight in promulgating these Standards, other regulatory entities have roles in developing and overseeing demand response programs administered by various electricity providers that prevent the potential stranding of customers' demand response assets.

Notably, the only "market" for demand response is the regulated demand response market. Unlike, for example, unscrupulous vendors who might try to sell solar panels to homeowners that do not make economic or environmental sense for that consumer, demand response programs exist only in the regulated environment. There is no demand response market outside this regulated setting.

The California Public Utilities Commission ("CPUC") has jurisdiction over the investor owned utilities ("IOUs"), which administer their customers' demand response programs.[2] Similarly, publicly owned utilities ("POUs"), such as municipal utility districts, irrigation districts, and municipally owned utilities are governed by their boards. Like the CPUC for IOUs, the POU boards oversee the administration of demand response programs for the POUs.[3]

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[1] Terminology for aggregators often depends on the entity administering a program. The California Public Utilities Commission, for example, uses the name demand response provider ("DRP") while the California Independent System Operator is using the term Distributed Energy Resource Provider ("DERP"), and PG&E's website terms these entities "third party DR providers."

[2] See Cal. Const., Art. XII, Sec. 3; Pub. Util. C. Sec. 380(b); CPUC Decision 17-12-003, *Decision Adopting Demand Response Activities and Budgets for 2018 through 2022*.

[3] See, e.g., Sacramento Municipal Utility District's PowerDirect® Automated Demand Response Program, available at https://www.smud.org/en/Business-Solutions-and-Rebates/PowerDirect-Technology; Los Angeles Department of Water and Power's Demand Response program for commercial and industrial customers, available at

There is accountability for demand response programs through the CPUC and through the POU boards. The CPUC places important consumer protections in how they establish and administer their demand response programs.[4] For example, the CPUC establishes the regulatory requirements and parameters for IOUs Direct Participation Demand Response Program.[5] The IOU tariffs administering this program protect consumers with requirements for demand response provider registration at the CPUC, a customer notification letter explaining the DR provider's terms and conditions of participating in the program, a performance bond for non-Utility DR providers, and a customer complaint process that can result in revocation of a DR provider's registration with the CPUC.[6] The CPUC, the CAISO, and other entities have therefore placed numerous conditions on aggregator participation in programs and provide active oversight.

The CPUC and the POU boards also have the power, through law, regulation and contract, to step into the shoes of a contracting entity if it should fail. Moreover, in terms of legal and financial tools, the CPUC and POU boards have the ability to pursue remedies, including remedies as creditors in bankruptcy proceedings, from any companies that would in theory "strand" devices through voluntary or involuntary business dissolutions.

E. California Law Provides Demand Program Administrators and Law Enforcement Officials With Consumer Safeguards To Protect Against Unscrupulous Actors

It has been suggested that demand responsive control providers might be able to engage in unscrupulous behavior. In one hypothetical suggested to Nest, an unscrupulous demand response provider enters the market by selling a device (the "low-ball" market entry), then, after making the sale, establishes services necessary to make the device demand responsive that extort additional money out of consumers.[7] Fortunately, there are consumer protections against such predatory strategies that could undermine energy efficiency opportunities.

In addition to the consumer protections of demand response programs designed and administered by the CPUC and POU boards, other state agencies also have authorities to respond

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https://www.ladwp.com/ladwp/faces/ladwp/commercial/c-savemoney/c-sm-rebatesandprograms/c-sm-rp-demandresponse?_adf.ctrl-state=18spnznmle_66&_afrLoop=549007760420806.

[4] See CPUC Decision 12-11-025 at 20, explaining that the purpose of Direct Participation Demand Response is "to provide the administrative, technical, and financial mechanisms to allow DR providers to bid resources directly into the CAISO market *while protecting customers and ratepayers*" (emphasis added).

[5] This program is administered under Rule 24 for Pacific Gas and Electric and Southern California Edison and Rule 32 for San Diego Gas & Electric. The CPUC's webpage for this program is http://www.cpuc.ca.gov/General.aspx?id=6306.

[6] CPUC Decision 12-11-025; PG&E Rule 24, available at https://www.pge.com/tariffs/tm2/pdf/ELEC_RULES_24.pdf; SCE Rule 24, available at https://www.sce.com/NR/sc3/tm2/pdf/Rule_24.pdf; SDG&E's Rule 32, available at http://regarchive.sdge.com/tm2/pdf/ELEC_ELEC-RULES_ERULE32.pdf.

[7] Nest cannot conceive of a business model that would be employed in this hypothetical. Even assuming, for the sake of argument, a device manufacturer tried to bait and switch, asking more money for services after a sale, the hypothetical threat is, in essence, "Pay me more money, or you will have to operate your own pool pump [or other device]."

to and discourage harmful business practices. For example, the Business, Consumer Services and Housing Agency's California Department of Consumer Affairs ("DCA") Boards and Bureaus "educates consumers by giving them the information they need to avoid unscrupulous or unqualified people who promote deceptive or unsafe services."[8] If this Commission were made aware of such abuses, it would use its legal authorities, bully pulpit, moral suasion and its alliances with other regulatory entities to bring such sharp practices to a quick end.

Second, beyond the regulatory setting, California law enforcement officials protect consumers. California law provides plenary prosecution of such predatory and unscrupulous business practices. As one example, the California Business and Professions Code unambiguously protects consumers from "…any unlawful, unfair or fraudulent business act or practice and unfair, deceptive, untrue or misleading advertising and any act prohibited by…Business and Professions Code.[9]

The Attorney General of California can use its authority to protect consumers from violations of this law or other legislated consumer protections.[10] Further, as highlighted on the Attorney General's website, local law enforcement has a role to play in curtailing fraudulent business activities. "If you think a business has committed fraud or a crime, please tell your local district attorney's office or your City Attorney." These laws protect consumers in all market sectors.

F. Requiring OpenADR In All Demand Responsive Control Devices Raises Legitimate Privacy and Cybersecurity Concerns

Legitimate or otherwise, having a single open source communications protocol, like the OpenADR standards, for all demand responsive control devices, leads to concerns over customer privacy and data security.

Where all devices incorporate OpenADR standards for their communications protocol, questions from privacy advocates may arise that ask, "Can or will the government or other entity control my device without my consent?" As the Commission has seen in the past, there are concerns over allowing a governmental entity to have the theoretical ability to command all in-home devices.[11] Having a single, government-sponsored communications protocol that allows access to all demand responsive controls could spark a new round of privacy concerns.

While the Draft Standards may allow for additional communications protocols, they also require the open source-based OpenADR standards be used by all demand responsive control devices. Where every demand responsive control device in California responds to a signal that uses an OpenADR standard, there is an outsized incentive for cyber criminals to discover a weakness in this code. Where a weakness is discovered in the security of a communications

[8] *Who We Are and What We Do*, California Department of Consumer Affairs, July 2015, available at http://www.dca.ca.gov/publications/dca_booklet.pdf .

[9] California Business and Professions Code, Section 17200. Available on line at https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?sectionNum=17200.&lawCode=BPC .

[10] Office of the Attorney General website at https://oag.ca.gov/consumers.

[11] "California Seeks Thermostat Control," Jan. 11, 2018 http://www.nytimes.com/2008/01/11/us/11control.html .

protocol that results from application of the Mandatory OpenADR standard, then the cyber criminal's objective could be control over every demand control device on the grid.

While we believe that the OpenADR Alliance has the best intentions to provide cybersecurity protections, and we understand that strong efforts have been made to safeguard the OpenADR standard from cybersecurity threats, the history of successful cyberattacks dictates that seemingly secure interconnected systems have been penetrated.[12] Putting every demand control device at risk through a regulatory-imposed requirement that all devices use the same open source-based communications standard, unfortunately, can create perverse incentives to discover a workaround for OpenADR security protections.

II. THE PROPOSED STANDARDS DO NOT RECOGNIZE THE LEADING DEMAND RESPONSE MARKET STRUCTURE, THREATENING TO STIFLE DEMAND RESPONSE AS A TOOL FOR MANAGING CALIFORNIA'S LOAD SWINGS

The market for demand response has developed with many responsible players, all of whom have a role in the market and share a common interest in consumer protection and customer service. In the emerging demand response markets there are "aggregators" who receive a demand response signal from the utility and transmit a proprietary signal to consumers' devices or to a building system to implement demand response. This market structure is exhibited by the IOUs' Direct Participation Demand Response Program discussed above in Section I.C. The recently filed Joint IOU Guidelines for the 2018-2022 Automated Demand Response Technology Incentive (Auto-DR) Program also exhibit continued use of this model.[13]

As described above, aggregators are typically third party entities, most commonly DERMS that receive the utility demand response signal and communicate with consumers' devices using the devices' existing API. In this case, the aggregator might control multiple brands of thermostats, and/or other devices like lighting or pool pumps.

In other cases, a company like Nest acts as its own aggregator. For example, Nest acts as an aggregator in a residential demand response program with SCE.[14] In this role, Nest receives a

[12] "Data of 143 million Americans exposed in hack of credit reporting agency Equifax," Sept. 7, 2017, available at https://www.washingtonpost.com/business/technology/equifax-hack-hits-credit-histories-of-up-to-143-million-americans/2017/09/07/a4ae6f82-941a-11e7-b9bc-b2f7903bab0d_story.html?utm_term=.81b0f3e0210a ; "Up to 100,000 Taxpayers Compromised in Fafsa Tool Breach, I.R.S. Says," Apr. 6, 2017, available at https://www.nytimes.com/2017/04/06/us/politics/internal-revenue-service-breach-taxpayer-data.html; "The NSA has linked the WannaCry computer worm to North Korea," June 14, 2017, https://www.washingtonpost.com/world/national-security/the-nsa-has-linked-the-wannacry-computer-worm-to-north-korea/2017/06/14/101395a2-508e-11e7-be25-3a519335381c_story.html?utm_term=.e3cb79657999.

[13] See *Joint IOU Guidelines for the 2018-2022 Automated Demand Response Technology Incentive (Auto-DR) Program*, filed Feb. 20, 2018, CPUC R. 17-01-021, available at http://www3.sce.com/sscc/law/dis/dbattach5e.nsf/0/0EF6E528DA5F6B438825823B0005B9DE/$FILE/A1701012%20et%20al-Joint%20IOU's%20Proposed%20Guidelines%20for%202018-2022%20Auto%20DR%20Program.pdf.

[14] SCE's smart thermostat demand response program partners with qualified smart thermostats, including Nest's products and thermostats. Information on this program is available at

request from SCE that uses OpenADR. Using its own API, Nest then calls on individual customers to reduce energy use through automatic thermostat adjustments. Nest, in the aggregator role, communicates the aggregated demand response back to SCE using the OpenADR standard. The proposed Joint IOU Guidelines for the Auto-DR Program also would not impose a Mandatory OpenADR on the communications protocol of the end-use device.[15] This market structure, with aggregators serving as directed by utility needs, is thriving both in California and nationally.

As proposed, Section 110.12(a) would create unnecessary costs, efforts, and security concerns by requiring the Nest thermostat to become an OpenADR VEN. Aggregation of devices is working and consumer protections are in place. The Commission should avoid imposing a market constraint that could considerably disrupt the significant, existing, and growing aggregator-based demand response market.

III. THE RECORD IN THIS PROCEEDING LACKS COST ANALYSES AND OTHER INFORMATION REQUIRED BY STATUTE TO IMPOSE A MANDATORY OPENADR STANDARD

The Commission's record fails to satisfy the requirements of the Government Code for a Mandatory OpenADR system. As one example, Government Code § 11346.2 (b)(5)(B) requires detailed cost analyses for new market constraints:

> If a proposed regulation is a building standard, the initial statement of reasons shall include the estimated cost of compliance, the estimated potential benefits, and the related assumptions used to determine the estimates.

The Commission's record does not contain cost analysis of Mandatory OpenADR. Nest has been asked, "How much would it cost to add OpenADR to your thermostats?" The fact that the question is being asked is evidence that the Commission's record does not include a cost analysis of a Mandatory OpenADR requirement.

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https://pages.email.sce.com/SCESmartBonus/.

[15] *Joint IOU Guidelines for the 2018-2022 Automated Demand Response Technology Incentive (Auto-DR) Program*, filed Feb. 20, 2018, CPUC R. 17-01-021, at Appendix A, available at http://www3.sce.com/sscc/law/dis/dbattach5e.nsf/0/0EF6E528DA5F6B438825823B0005B9DE/$FILE/A1701012%20et%20al-Joint%20IOU's%20Proposed%20Guidelines%20for%202018-2022%20Auto%20DR%20Program.pdf. Southern California Edison's proposed eligibility requirements for residential Auto-DR incentives clarifies, "[a]uthorized third-party [demand response providers] must be able to receive OpenADR signal," and "[q]ualifying devices must be able to communicate to SCE's VTN or through an authorized third-party that communicates with SCE's VTN" (emphasis added). PG&E proposes, "[t]he ADR signal uses one or a combination of qualified open-based standards (OpenADR 2.0, Smart Energy Profile 1.1/2.0, or any other standard that is listed in the Smart Grid Interoperability Panel Catalog of Standards). Compliance testing can be done at the manufacturer's internet/cloud application level rather than at the end-use device level itself" (emphasis added).

The Mandatory OpenADR proposal is admittedly a substantial change that requires a robust record not present in this case. The Initial Statement of Reasons ("ISOR") in this rulemaking does not include the required cost estimates for imposing Mandatory OpenADR on all demand responsive controls' communications protocols. The ISOR admits that the change to OpenADR is a significant change:

> This [Mandatory OpenADR] change has the ***substantive effect*** of specifying a default communications protocol common to all demand responsive equipment, residential and nonresidential, and is necessary to ensure that the demand responsive and demand managing abilities of buildings are not made unavailable if a proprietary communications format is deprecated or if support for the format ceases. (ISOR, TN #: 222218, pp. 36-37.)

This change is substantive, so, as required by Government Code § 11346.2 (b)(5)(B), there must be a cost analysis—which is simply not in the record.

Additionally, Government Code § 11346.2 (b)(1)-(3) (b) requires that an ISOR include, among other things: (1) a statement of the specific purpose of each adoption, amendment, or repeal, the problem the agency intends to address, and the rationale for the determination by the agency that each adoption, amendment, or repeal is reasonably necessary to carry out the purpose and address the problem for which it is proposed and the benefits anticipated; (2) an economic impact assessment; and (3) an identification of each technical, theoretical, and empirical study, report, or similar document, if any, upon which the agency relies in proposing the adoption, amendment, or repeal of a regulation. The record in this proceeding does not include these three analyses required for a substantial change, like imposing Mandatory OpenADR for devices to qualify as demand responsive controls under the Standards. Thus, the record does not meet the requirements for an admittedly "substantive" change to the existing regulations.

Mandating a change to OpenADR for all demand responsive controls has not been analyzed as required by the Government Code and applicable regulation. Accordingly, the Commission cannot proceed with Mandatory OpenADR based on this record.

IV. NEST OFFERS COMPROMISE LANGUAGE THAT WILL BOTH ALLOW THE COMMISSION TO ADVANCE OPENADR AND REINSTATE THE CURRENT STANDARD'S FLEXIBILITY NECESSARY TO ALLOW CALIFORNIA'S EMERGING DEMAND RESPONSE MARKETS TO THRIVE

As discussed above, making OpenADR mandatory for demand responsive controls is not supported by the record in this proceeding. However, Nest understands that the Commission would like to advance OpenADR in this current Standards cycle. Fortunately, there is a solution to protect the emerging demand response market while also advancing the Commission's interest in OpenADR.

The existing definition of "Demand Responsive Control" focuses on the capability to receive and respond to demand signals, without specifying OpenADR or any other proprietary communications: "Demand Responsive Control" is a kind of control that is capable of receiving and automatically responding to a demand response signal."[16] This language makes no mention of OpenADR, focusing only on the ability to respond to a demand signal. Similarly, Joint Appendix 5 of the 2016 Building Standards provides, in pertinent part, that "The OCST shall be capable of receiving signals that have been transmitted using a non-proprietary communications protocol." Again, the OpenADR standard is not required in JA5. Instead, JA5 focuses on the capability of receiving a signal that has been originally transmitted using a variety of potential open-source standards.[17] The current market structure allowing aggregators to receive any open-source signal and transmit that signal to a device via a proprietary API is flexible yet secure.

The existing Standards and the existing record support protocols capable of using a list of open-source standards. So long as these existing elements remain, the Commission has the authority to add to these existing requirements its desired references to OpenADR. Therefore, we propose the following changes to 110.12(a) based on the existing record.

Our proposed Subsection 110.12(a)(1)(A) retains the Commission's newly proposed OpenADR specifications. By making OpenADR one option – and not a mandatory requirement – the Commission avoids the issues regarding whether there is a sufficient record to impose a Mandatory OpenADR protocol. OpenADR is featured, but not to the exclusion of other systems currently employed and providing value in the market.

New Subsection 110.12(a)(1)(B) reinstates the 2016 Standard's flexibility to have the end use demand response control device be capable of receiving a signal that ***originates*** in OpenADR. This comports with what we believe to be the Commission's interest in having utilities and other load serving entities transmit demand response signals in OpenADR. Down the chain from the signal originating in OpenADR by the utility, flexibility in turn allows aggregators to communicate with the demand responsive control device using OpenADR or proprietary communication protocol:

> 110.12(a) Demand responsive controls.
> 1. All demand responsive controls shall be **either:**
>
> **A.** An OpenADR 2.0a or OpenADR 2.0b Virtual End Node (VEN), as specified under Clause 11, Conformance, in the applicable OpenADR 2.0 Specification**; or**
>
> **B. A device capable of responding to a demand response signal that originated via OpenADR 2.0a or OpenADR 2.0b. The originating signal may pass through one or more Virtual End Nodes, which**

[16] Title 24, Part 1, Chapter 10, Article 1, §10-102.

[17] See 2016 Reference Appendices for the 2016 Building Energy Efficiency Standards, Joint Appendix 5, Sec. JA5.3.1, available at http://www.energy.ca.gov/2015publications/CEC-400-2015-038/CEC-400-2015-038-CMF.pdf.

may in turn communicate to the device or an intermediary in open source or proprietary signals.

With this compromise, the Commission signals that OpenADR will be an integral part of the 2022 Standards cycle while allowing aggregators, DERMs and other entities to continue to communicate with customer devices in manner that assures California's emerging demand response market continues to thrive.

V. CHANGES TO THE STANDARDS RELATED TO DEMAND CONTROL DEVICES, AND PARTICULARLY OCSTs, SHOULD ALSO FOCUS ON ADVANCING ENERGY EFFICIENCY, TITLE 24'S CORE MISSION

California and this Commission are leading the nation in the right direction, emphasizing energy efficiency and energy savings through the thoughtful development of robust Title 24 Standards. The Commission's efforts to carry out its mission to "reduce wasteful, uneconomical, and unnecessary uses of energy"[18] are evident in the strong, common-sense standards for OCSTs, both throughout the Standards and in the applicable Joint Appendix 5.

Nest is pleased to be part of the progress that has taken place in the thermostat industry since the promulgation of the current 2016 Standards, participating in various state and federal initiatives to advance energy efficiency.

Since the 2016 Standards were promulgated, the U.S. Environmental Protection Agency has come out with energy efficiency standards for smart thermostats as part of its ENERGY STAR Program, known as the ENERGY STAR Program Certified Smart Thermostat.[19] These new standards promote the public policy objective of increased energy efficiency by requiring qualifying thermostats to demonstrate savings based on actual data from thermostats in the field in five climate zones. Energy Star smart thermostats are expected to save 8% or more on heating and 10% or more on cooling system run times.[20] Currently, Nest has received Energy Star designation for both of its thermostat models.[21] In addition, there are currently 20 additional models from competitors to Nest that have also received the Energy Star designation.[22]

Through the proposed revisions to JA5, the Commission makes great strides by encouraging the installation of thermostats that can adjust in response to price signals and Demand Response Signals. While demand response is an important tool for grid management

[18] Pub. Res. C. Sec. 25007.

[19] The ENERGY STAR Program Certified Smart Thermostat information is available at https://www.energystar.gov/products/heating_cooling/smart_thermostats.

[20] See: https://www.energystar.gov/products/heating_cooling/smart_thermostats/key_product_criteria.

[21] See: https://nest.com/blog/2017/02/28/the-nest-thermostat-earns-an-energy-star/.

[22] See: https://www.energystar.gov/productfinder/product/certified-connected-thermostats/results?scrollTo=257&search_text=&markets_filter=United+States&zip_code_filter=&product_types=Select+a+Product+Category&sort_by=brand_name&sort_direction=asc&currentZipCode=20011&page_number=0&lastpage=0.

and reliability, energy efficiency remains at the heart of Title 24, and the proposed revisions to JA5 do not adequately further this core goal of Title 24.

In furtherance of the Commission and Title 24's energy efficiency mission, Nest encourages the Commission to make additional changes to JA5 that advance the energy efficiency capabilities of OCSTs. There are several ways the Commission could add an energy efficiency requirement to its requirements for OCSTs.

First, the Commission could adopt the Energy Star standard as a requirement for OCSTs.

Second, the Commission could require a series of capabilities for OCSTs that create the energy savings in Energy Star smart thermostats such as:

- Ability to remotely operate the thermostat
- Ability to sense occupancy and automatically go into an efficiency mode when no one is home.
- Ability to provide consumers with useful data on their HVAC energy consumption.
- Ability to easily create a schedule for the thermostat that matches the customer's lifestyle.

There could be other capabilities as well, this is just a representative sample.

A third option would be to use the EPA energy savings methodology, or similar methodology, to come up with a minimum energy efficiency level for thermostats in California.

We realize that it may be late in the 2019 revision process to introduce a new concept that has not been vetted with a wide range of stakeholders. That said, energy efficiency is the primary reason for Title 24 in the first place and it is time that the Commission begin the process of evaluating the energy efficiency of thermostats which control the largest single users of energy in residential dwellings—the heating and cooling systems.

CONCLUSION

Nest thanks the Commission for its leadership and for this opportunity to comment on the proposed changes in the 2019 Building Energy Efficiency Standards. We look forward to continuing to work with the Commission on these important initiatives.

Sincerely,

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