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EXPRESS TERMS

California Code of Regulations
Title 20. Public Utilities and Energy
Division 2. State Energy Resources Conservation and Development Commission
Chapter 4.1. Flexible Demand
Article 1. Flexible Demand Appliance Standards

Proposed new language appears as underline (example) and proposed deletions appear as strikeout (~~example~~). Existing language appears as plain text. Three dots or "…" represents the substance of the regulations that exists between the proposed language and current language.

§1690. Scope.

(a) This Article applies to the following types of new appliances sold or offered for sale, rented, imported, distributed, or leased for use in California regardless of the physical location of the seller and includes, without limitation transactions conducted over telephone or the internet. Unless otherwise specified, each provision applies only to units manufactured on or after the effective date of the provision.

(1) Pool controls that are consumer products designed to use single-phase AC power as input power.

(2) HVAC thermostats.

~~Credits~~
~~Note~~NOTE: Authority cited: Sections 25213, 25218, 25402(~~f~~e) and 25402.11, Public Resources Code. Reference: Sections 25216.5(d), 25402(~~f~~e) and 25402.11, Public Resources Code.

§1690.1. Rules of Construction.

(a) The following rules of construction apply to this Article:

(1) Where the context requires, the singular includes the plural, and the plural includes the singular.

(2) The use of “and” in a conjunctive provision means that all elements in the provision must be complied with or must exist in order to make the provision applicable. “Or” (rather than “and/or”) is used where compliance with one or more elements suffices, or where the existence of one or more elements makes the provision applicable.

(3) “Shall” is mandatory and “may” is permissive.

~~Credits~~

~~Note~~NOTE: Authority cited: Sections 25213, 25218, 25402(~~f~~e)and 25402.11, Public Resources Code. Reference: Sections 25216.5(d), 25402(~~f~~e)and 25402.11, Public Resources Code.

§1691. Definitions.

In this Article the following definitions apply.

(a) General Definitions.

"Accessible place" means a place on an appliance that can be easily seen without the need for tools to remove any covering.

"Attestation" in Section 1695 and 1696 means an attestation specified in Subsection (J)(2) of Section 1695.

"Authorized entities" means the owner of the equipment, the user of the equipment, or the owner's or user's delegated agent.

"Authentication" means a method of verifying the authority of a user, process, or device to access resources in a connected device.

"Autoflex" means an operating mode of an appliance that determines if an autoflex operating schedule would reduce greenhouse gas emissions associated with electricity generation or support grid reliability and, if so, automatically generates and implements an autoflex operating schedule.

"Autoflex dataset" means the MIDAS dataset currently used for the generation of an autoflex operating schedule.

"Autoflex off-peak hours" means the hours within a calendar day during which signals of the autoflex dataset have values below the median of values for the day.

"Autoflex operating schedule" means an operating schedule that adjusts how and when associated equipment operates in order to reduce greenhouse gas emissions associated with electricity generation or support grid reliability during autoflex peak hours, can be modified or disabled by the consumer, and is based on an autoflex dataset. The autoflex operating schedule may increase electricity usage during autoflex off-peak hours in order to reduce GHGs and overall costs or maintain consumer comfort.

"Autoflex peak hours" means the hours within a calendar day during which signals of the autoflex dataset have values at or above the median of values for the day.

"Automatic clock synchronization" means the ability of an appliance to synchronize its internal system clock to local time without manual user intervention when connectivity is enabled and available.

"Basic model" means all units of a given type of appliance (or class thereof) that are manufactured by the same manufacturer or manufacturers, have the same primary energy source, and have the same electrical, physical, or functional characteristics that affect compliance with a flexible demand standard.

"Combined signals" a combination of electricity price and greenhouse gas emissions signals contained in the active MIDAS dataset.

“Communication layers” mean the organization of communication into separate functional components that interact in a sequential and hierarchical way.

“Communication link” means the mechanism for bidirectional data transfers between the connected device and one or more external applications, devices, or systems.

“Connected device” means any device that can be wired or wireless and communicate via open standards with entities outside the device by means of integrated or separate communications hardware or software. A device that is able to receive but not send communication is not a connected device.

“Connected ready device” means a device that is designed to perform as a connected device by means of separate communications hardware or software, where any separate hardware or software needed for communication is not included with the device and must be purchased or acquired separately. ~~For the purpose of this Article a device that includes all communications hardware and software needed to perform as a connected device is not considered connected ready; a device including all hardware and software needed for connectivity is a connected device, even if the included hardware or software is separable or requires installation. See also “connected device”.~~

”Connectivity enabled” means a condition in which the consumer has affirmatively enabled the appliance’s network functionality through the user interface or initial configuration process and has not subsequently disabled such functionality.

“Connectivity available” means a condition in which the appliance, with connectivity enabled, has active internet access sufficient to retrieve MIDAS datasets directly from the MIDAS.

“Consent” means permission or agreement to use the capabilities of an appliance subject to this Article to schedule, shift, or curtail its use. Consent may be express or implied.

“Consumer” means the end user of an appliance; a consumer may also be a customer of an electric utility. See also “customer”.

“Consumer product” means any appliance or device that consumes energy, controls the energy consumption of another device or appliance, or charges a battery and is distributed in commerce for personal use by individuals.

“Customer” means a purchaser of service from an electric utility; a customer may also be the consumer of an appliance. See also “consumer”.

“Dataset Version Identifier” means a unique identifier associated with a specific MIDAS dataset released by the Energy Commission that enables verification of dataset retrieval.

“Default RIN” means the Energy Commission-designated RIN corresponding to the MIDAS dynamic dataset. Intended for use when a consumer has not entered a RIN.

“Demand response” means the capability to reduce, increase, or shift electric loads in response to authorized demand response events. This capability includes, but is not limited to, automatically adjusting setpoints, schedules, or operating modes.

“Demand response event” means a time-limited signal initiated by a utility, grid operator, or authorized program administrator in response to electric grid stress, peak demand conditions, or system congestion. Demand response events include, but are not limited to, a preconditioning period, a load reduction period, and a recovery period.

“Demand Response operating schedule” means an operating schedule sent by an authorized entity containing one or more demand response events that adjusts how and when associated equipment operates.

“Documentation” in Sections 1695 and 1696 means any applicable manufacturer-issued written or electronic materials provided with, incorporated into, or made publicly available by the manufacturer for an appliance, including, but not limited to, product manuals, installation instructions, user guides, technical specifications, compliance documentation, and official product webpages.

“Energy Commission” means the State Energy Resources Conservation and Development Commission.

“Executive Director” means the executive director of the Energy Commission or their designee.

“Flex Alert” means a voluntary call for energy conservation during a specific time period, issued by the California Independent System Operator, requesting that customers reduce electricity use in response to grid reliability challenges, such as exceptionally high system load or a transmission emergency.

“Flexible demand” means the capability to schedule, shift, or curtail the electrical demand of a load-serving entity’s customer or a local publicly owned electric utility's customer or through direct action by the customer, or through action by a third party, a load-serving entity, or a grid balancing authority, with the customer’s consent.

“Flexible demand program database” means the database established, used and maintained by the Energy Commission for the non-exclusive purpose of receiving, validating and publishing program-related data.

“Interoperable device” means a device utilizing a standardized, non-proprietary protocol to exchange information with external entities using hardware or software and that can use the information that has been exchanged for flexible demand capabilities, regardless of the manufacturer or underlying technology.

“Load-serving entity” means an electrical corporation as defined in Section 218 of the Public Utilities Code, an electric service provider as defined in Section 218.3 of the Public Utilities Code, or a community choice aggregator as defined in Section 331.1 of the Public Utilities Code. “Load-serving entity” does not include any of the following:

(1) A local publicly owned electric utility;

(2) The State Water Resources Development System commonly known as the State Water Project; or

(3) Customer generation located on the customer's site or providing electric service through arrangements authorized by Public Utilities Code section 218, if the customer generation, or the load it serves, meets one of the following criteria:

(A) It takes standby service from the electrical corporation on a California Public Utilities Commission-approved rate schedule that provides for adequate backup planning and operating reserves for the standby customer class;

(B) It is not physically interconnected to the electrical transmission or distribution grid, so that, if the customer generation fails, backup electricity is not supplied from the electrical grid; or

(C) There is physical assurance that the load served by the customer generation will be curtailed concurrently and commensurately with an outage of the customer generation.

"Local publicly owned electric utility" has the meaning specified in Section 224.3 of the California Public Utilities Code.

"Logical" means accessible through a hardware or software interface.

"Manufacturer" means any person or company engaged in the production or assembly of an appliance or commercial and industrial equipment, or any person that has responsibility for the production or assembly of an appliance, including but not limited to private brand packagers and re-assemblers.

"MIDAS" means the Market Informed Demand Automation Server operated by or on behalf of the Energy Commission that publishes datasets containing electricity prices, electricity-related greenhouse gas emissions, Flex Alerts, and other Energy Commission-approved signals accessible through an online application programming interface.

"MIDAS dataset" means a dataset of signals made available through MIDAS. A MIDAS dataset may be a MIDAS static dataset, a MIDAS dynamic dataset, or a dataset corresponding to a consumer-entered RIN.

"MIDAS dynamic dataset" means a MIDAS dataset corresponding to the Default RIN that is regularly updated and retrievable by an appliance when connectivity is enabled and available.

"MIDAS static dataset" means a MIDAS dataset designated for factory installation that may be overwritten with the most recent updatable version when the device is connected with consumer consent.

"Model" means any collection of appliance units to which the manufacturer has assigned the same model number.

"Model number" means a combination of letters, digits, or characters representing the manufacturer, brand, design, or performance of an appliance.

"Non-volatile integral memory" means a type of computer memory integral to the appliance that retains stored information even if the appliance is unpowered.

"Open standards" means standards adopted or published, individually or jointly, by one or more of the following organizations: the National Institute of Standards and Technology (NIST), American National Standards Institute (ANSI), International Organization for Standardization (ISO), International Electrotechnical Commission (IEC), International Telecommunication Union (ITU), Institute of Electrical and Electronics Engineers (IEEE), OpenADR Alliance, or Internet Engineering Task Force (IETF).

"Personal information" has the meaning specified in California Civil Code Section 1798.140(v).

"Readily Accessible" means a consumer can obtain information through an integral physical user interface and can directly view or reach it from the primary status or settings screen using no more than two consumer navigation actions. Scrolling within a displayed screen does not constitute a consumer's navigation action.

"Retrieval Timestamp" means the recorded date and time at which a MIDAS dataset is successfully retrieved by the appliance.

"RIN" means a rate identification number used to retrieve a time-dependent retail electricity rate or other Energy Commission-approved dataset made available through MIDAS.

"Security feature" means a collection of functions used to protect the connected device from unauthorized use or unauthorized disclosure of data.

"Sold or offered for sale in California" means any sale of or offer to sell an appliance for end use in the state, regardless of the seller's physical location, and includes, without limitation, internet, telephone, and mail order transactions. For purposes of this Article, the Uniform Commercial Code–Sales (Division 2 (commencing with Section 2101) of the Commercial Code) does not define "sold or offered for sale" or determine where sales or offers for sale occur.

"Special character" means a~~ny~~ printable non-alphanumeric character that can be rendered on a standard, American-English keyboard, and includes the following ASCII special characters: !"#$%&'()*+,-./:;<=>?@[\]^_`{|}~.

"Signals" for purposes of this Article, means any of the following time-varying data: import or export prices, GHG emissions, grid reliability calls such as Flex Alerts, demand charges, or other variables which are included in a MIDAS dataset.

… [Skipping subdivision (b) Pool Control Definitions.]

(c) HVAC thermostat Definitions.

"Comfort Bounds" means the consumer-defined limits on how far an autoflex operating schedule or demand response adjustment may raise or lower the temperature setpoint relative to the consumer's current setpoint.

“Dual-fuel system” means a heating and cooling system that combines an electrically driven heat pump with a secondary fuel-fired heating system, typically a natural-gas, propane, or oil furnace.

“Line-voltage thermostat” means an appliance, or combination of appliances, that controls the operation of an immobile electric resistive heating or radiant heating system with a nominal operating voltage of 120 VAC to 240 VAC.

“Low-voltage thermostat” means an appliance, or combination of appliances, including but not limited to, a thermostat that is powered by a Class 2 transformer and operating at a nominal voltage of not more than 30 VAC that controls one or more electric and immobile heating, ventilation, and air conditioning equipment.

“Proprietary thermostat” means an appliance, or combination of appliances, with a non-open standard that controls one or more electric and immobile heating, ventilation, and air conditioning equipment.

“HVAC thermostat” means an appliance, or a combination of appliances, that controls one or more electric and immobile heating, ventilation, and air conditioning equipment. This includes a low-voltage thermostat and a proprietary thermostat.

(1) HVAC thermostat excludes:

(A) building management systems,

(B) Line-voltage thermostats, and

(C) Window AC thermostats.

~~Credits~~

~~Note~~NOTE: Authority cited: Sections 25213, 25218, 25402(~~f~~e)and 25402.11, Public Resources Code. Reference: Sections 25216.5(d), 25402(~~f~~e)and 25402.11, Public Resources Code

§1692. General Requirements.

(a) Testing. If section ~~1693~~1698 of this Article requires that a specific appliance type be tested, then the manufacturer shall cause the testing of units of each basic model of appliance within the scope of this Article and comply with the applicable provisions of this section.

(1) The testing shall be at a laboratory that:

(A) has conducted tests using the applicable test method within the previous 12 months;

(B) agrees to and does interpret and apply the applicable test method set forth in section ~~1693~~1698 of this Article precisely as written;

(C) has, and keeps properly calibrated and maintained, all equipment, material, and facilities necessary to apply the applicable test method precisely as written;

(D) agrees to and does maintain copies of all test reports, and provides any such report to the Executive Director on request, for all basic models that are still in commercial production; and

(E) agrees to and does allow the Executive Director to witness any test of such an appliance on request, up to once per calendar year for each basic model.

(b) Marking. The following information shall be permanently, legibly, and conspicuously displayed on an accessible place on each unit of every appliance within the scope of this Article~~.~~:

(1) manufacturer's name or brand name or trademark;

(2) model number; and

(3) date of manufacture, indicating (i) year and (ii) month or smaller (e.g., week) increment. If the date is in a code, the manufacturer shall immediately, on request, provide the code to the Energy Commission.

(4) User information about the use and benefits of load flexibility marking shall be marked on the retail packaging or front page of the printed or digital user manual in the same font size and format as used to comply with subsection (b)(1), stating:

"This device can shift operation to periods with lower electric rates, which often also align with reduced greenhouse gas emissions from electric power generation plants. Please consider taking advantage of this load flexibility functionality. More information is available on the FDAS program page on the CEC's website."

(c) Cybersecurity. Where applicable, appliances subject to this Article shall meet or exceed the requirements of state laws relating to reliability and cybersecurity, and shall comply, at a minimum, with the following North American Electric Reliability Corporation's (NERC) Critical Infrastructure Protection standards:

(1) Device Identification. The manufacturer shall assign a unique logical identifier to the connected device.

(A) The device identification shall be in a logical location accessible to authorized entities.

(2) Device Configuration. The configuration of the connected device's software shall be changed by authorized entities only.

(A) The connected device shall include the capability to allow the authorized entities to restore the device's default settings.

(3) Data Protection. The connected device shall provide customer or consumer data protection for any and all collected personal information, consistent with state and federal law.

(A) The connected device shall not collect categories of personal information unrelated to or not necessary for the function of the device, nor shall the connected device transmit or use personal information collected for purposes other than for the function of the device.

(4) Authentication. The connected device shall contain a security feature that requires a user to generate a new means of authentication before access is granted to the device for the first time, and if a plain text-based password is used it shall support the use of passwords meeting the password strength requirements listed below:

(A) The device shall support passwords of six characters or longer.

(B) The device shall support passwords that consist of a combination of alpha, numeric, and special characters.

(5) Software Update. The manufacturer shall have an update policy that informs the customer or the consumer how the manufacturer will support software updates and informs the customer or the consumer that the device is capable of being updated whenever new vulnerabilities are discovered.

(A) Connected devices shall provide the customer or the consumer with the ability to check for updates from the manufacturer's update service and to download, verify, and apply any available patches.

(B) The manufacturer shall provide an estimated security expiration date or end of life policy that informs the customer or the consumer when the manufacturer will be discontinuing device support.

(6) Restart Settings. Upon device restart, the device shall automatically restore the most recently programmed settings, including reconnection to a network.

(7) Automatic Rejoin. When physical or logical communication is lost, the connected device shall automatically attempt to rejoin the physical or logical communication.

(8) Override Function. The connected device shall allow the customer or the consumer to change the event responses and event response settings at any time.

(d) See section 1693 of this Article for additional requirements for specific appliances.

~~Credits~~

~~Note~~NOTE: Authority cited: Sections 25213, 25218, 25402(~~f~~e) and 25402.11, Public Resources Code. Reference: Sections 25216.5(d), 25402(~~f~~e) and 25402.11, Public Resources Code.

§1693. Appliance Specific Standards and Requirements.

(a) Every unit of every appliance within the scope of this Article shall comply with the applicable provisions of this section.

… [Skipping subdivision (b) Pool controls.]

(c) HVAC thermostat.

(1) Effective date.

The standards in this subsection shall apply to HVAC thermostats manufactured on or after [one year after adoption by the Energy Commission].

(2) Flexible demand appliance standards.

(A) General Requirements.

1. Each HVAC thermostat shall meet the definition of a connected device as set forth in Section 1691. A connected HVAC thermostat shall be able to connect to the internet.

2. Each HVAC thermostat shall be an interoperable device. Interoperability shall be provided by complying with the Virtual End Node (VEN) requirements specified in the OpenADR 3.1 standard.

(B) Integral Memory (Non-Volatile).

1. Each HVAC thermostat shall store in non-volatile integral memory:

a. A MIDAS static dataset which, at the time of final factory software image, shall be the most recent version available from the Energy Commission. The MIDAS static dataset may be updated and overwritten.

b. A MIDAS dynamic dataset or MIDAS dataset corresponding to a consumer-entered RIN.

c. The Default RIN.

d. An autoflex operating schedule.

e. Software to generate and implement autoflex operating schedules from MIDAS datasets and to retain or to regenerate the active schedule.

2. Each HVAC thermostat shall be capable of storing in non-volatile integral memory:

a. At least two RINs entered by a consumer or consumer-authorized entity.

3. Upon reset to factory settings, the HVAC thermostat shall:

a. Re-enable autoflex;

b. Restore the most recently updated MIDAS static dataset;

c. Restore demand response settings to factory default;

d. Clear any consumer-entered RIN; and

e. Restore the default RIN.

(C) Autoflex Operating Mode.

1. Each HVAC thermostat shall include an autoflex operating mode and autoflex operating schedule that is enabled by default at shipment from the manufacturer. When autoflex operating mode is enabled, the HVAC thermostat shall operate according to the autoflex operating schedule.

2. When connectivity is not enabled or a connection is not available, the autoflex dataset used to generate autoflex operating schedule shall be the most recently updated MIDAS static dataset.

3. The consumer shall be permitted to opt out of autoflex operating mode at any time.

4. When connectivity is enabled and a connection is available:

a. If a valid consumer-entered RIN is not present, the MIDAS dynamic dataset shall be the autoflex dataset, which the HVAC thermostat shall use to generate an autoflex operating schedule.

b. If a valid consumer-entered RIN is present, a MIDAS dataset associated with that RIN shall be the autoflex dataset, which the HVAC thermostat shall use to generate an autoflex operating schedule.

c. Use of the MIDAS dynamic dataset or a MIDAS dataset associated with a consumer-entered RIN shall require the consumer to opt in by enabling connectivity. The consumer shall be permitted to disable connectivity at any time.

d. Transmission of a RIN shall function solely to select the applicable tariff dataset and shall not constitute registration, authentication, device identification, persistent identity, session management, or telemetry transmission.

5. Each HVAC thermostat shall determine whether an autoflex operating schedule generated from the autoflex dataset and the consumer-defined Comfort Bounds would reduce greenhouse gas emissions associated with electricity generation or would support grid reliability, and, if so, store and implement the autoflex operating schedule.

6. The autoflex operating schedule shall reduce electricity loads during one or more autoflex peak hours and may increase electricity loads during one or more autoflex off-peak hours.

7. The autoflex operating schedule shall not increase or decrease fossil fuel consumption by the system it operates.

8. Disabling the autoflex operating mode shall not impair thermostat or space-conditioning functionality, including demand response functionality if enabled.

9. For dual-fuel systems, the autoflex operating schedule is only applicable to electric loads.

(D) MIDAS Dataset Retrieval and Integrity.

1. Retrieval of MIDAS datasets shall occur through an application programming interface using open internet protocols.

a. When connectivity is enabled and a connection is available, the HVAC thermostat shall, at intervals not exceeding 26 hours, attempt to retrieve the most recent MIDAS dataset corresponding to the active RIN.

3. If retrieval of a MIDAS dynamic dataset fails after at least two attempts:

a. The HVAC thermostat shall continue operating using the most recently retrieved MIDAS dynamic dataset; and

b. If no up-to-date MIDAS dynamic dataset is available from the MIDAS server after 48 hours, connectivity is disabled, or no connection is available, the autoflex dataset shall revert to the most recently updated MIDAS static dataset.

4. The HVAC thermostat shall be capable of receiving updates to the MIDAS static dataset when connected to a consumer-provided internet service or when connected to the thermostat manufacturer’s cloud services.

(E) Open Standards Communication.

For participation in demand response programs and communication of demand response operating schedules, each HVAC thermostat shall meet the minimum specifications of OpenADR 3.1 and shall not rely solely on a manufacturer or third-party service such that discontinuation of that service renders required demand response functionality unavailable.

(F) Third-Party Demand Response.

1. The HVAC thermostat shall be capable of receiving and implementing demand response operating schedules.

2. Third-party demand response functionality shall require express consumer authorization to opt in.

3. The HVAC thermostat shall constrain temperature setpoints associated with demand response events to the consumer-defined Comfort Bounds.

4. Demand response events shall:

a. Temporarily override the active autoflex operating schedule or consumer-defined schedule solely for the duration of the event;

5. Upon conclusion of a demand response event, the HVAC thermostat shall automatically restore the operating mode and temperature schedule that were in effect immediately prior to initiation of the event unless the consumer selects otherwise.

6. A consumer override during a demand response event shall terminate the event response and restore the consumer-selected operating mode and schedule.

(G) User Interface and Transparency.

1. The HVAC thermostat shall provide an integral user interface that allows the consumer to:

a. Enable or disable autoflex;

b. Override any demand response event or autoflex operation. The override shall remain in effect for a consumer-selected duration of up to eight hours or until 12:00 a.m. following initiation of the override, whichever occurs later. Autoflex operation shall resume when the override expires;

c. View and change the current operating mode, schedule, comfort bounds, indoor temperature, and temperature setpoints;

d. Adjust the relative intensity of autoflex automated scheduling and whether the autoflex schedule is based on price, GHG emissions, or a combination of the two;

e. Enter or modify the consumer's RIN. Any entry or modification of RINs shall require affirmative consumer action through a user interface; and

f. Request an update of the MIDAS static dataset

2. The user interface shall indicate in a readily available manner:

a. Whether autoflex is active;

b. Whether a MIDAS dynamic dataset or MIDAS static dataset is in use; and

c. When a demand response event is active, if applicable.

d. Information shall be presented to the consumer regarding price or emissions signals in numeric, relative, categorical, or descriptive form.

3. Notification of a MIDAS dataset update failure shall be required to appear on the user interface if such failure persists beyond 24 hours.

(H) Clock and Persistence of Settings.

1. The HVAC thermostat shall retain system settings, including the operating schedule and local time, for a minimum of 72 hours following a loss of external power.

2. The HVAC thermostat shall automatically synchronize its system clock to local time within 24 hours of connectivity being enabled and when a connection is available.

(3) Firmware and Ongoing Compliance.

(A) Firmware updates that modify or affect autoflex logic, dataset selection or handling, fallback operation, update frequency, or consumer override functionality require amended certification. Manufacturers shall submit amended certification according to the requirements in Section 1693(c)(3). Firmware updates that do not affect these functions or continued compliance with this section do not require re-certification.

(B) Before deploying a firmware update, the manufacturer shall prepare and retain a written attestation that the update does not degrade any required flexible demand functionality. When amended certification is required under subsection (A), the manufacturer shall submit the attestation with the amended certification. For an update that does not require amended certification, the manufacturer shall make the attestation available to the Commission upon request.

(4) Marking. The marking requirements in Section 1692(b) of this Article shall apply. No additional marking requirements apply to HVAC thermostats.

(5) Cybersecurity. The cybersecurity requirements in Section 1692(c) of this Article shall apply.

~~Credits~~

~~Note~~NOTE: Authority cited: Sections 25213, 25218, 25402(~~f~~e) and 25402.11, Public Resources Code. Reference: Sections 25216.5(d), 25402(~~f~~e) and 25402.11, Public Resources Code.

§1694. Customer and Consumer Consent.

(a) Manufacturers of appliances that are connected devices subject to this Article or of components that enable connectivity in connected ready devices subject to this Article shall provide mechanisms for obtaining consent that maximizes use of the appliances' flexible demand capabilities. These mechanisms shall include, but need not be limited to, the following:

(1) providing notifications with the device's packaging materials that describe its flexible demand capabilities, including, where applicable, that the device includes features that allow energy providers or other entities to control the device's flexible demand capabilities with the customer's or consumer's consent.

(2) providing information on the manufacturer's website of the device's flexible demand capabilities.

(3) providing electronic consent functions, including opt-in~~, or~~ and opt-out features for flexible demand capabilities required by this Article.

(4) obtaining consent prior to the collection of customer or consumer data.

(5) providing information on the manufacturer's website describing the acceptable use policies of data collected by the device.

(b) Appliances that are connected devices and are subject to this Article shall be capable of receiving, acting upon, and responding to authorized remote requests via a communication link, that schedule, shift, or curtail appliance operations with customer or consumer consent. At a minimum, the appliance shall be capable of acting upon and responding to authorized signals received via a communication link requesting:

(1) the start or stop of operation; and

(2) changes to equipment operation or schedule.

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~~Note~~NOTE: Authority cited: Sections 25213, 25218, 25402(~~f~~e) and 25402.11, Public Resources Code. Reference: Sections 25216.5(d), 25402(~~f~~e) and 25402.11, Public Resources Code.

§1695. Certification Requirements.

(a) Filing of Statements.

(1) Each manufacturer shall electronically file with the Executive Director through the flexible demand program database a statement for each appliance that is sold or offered for sale in California.

(2) The manufacturer statement shall contain the following information:

(A) each statement shall be a single and complete line of data for a specific model and end-use, containing all the data required in section 1696 of this Article for that appliance type.

(B) Asterisks in Model Numbers. In filing any statement, the manufacturer may use asterisks as a substitute for letters, numbers, blanks, or other characters in the model number, provided that an asterisk:

1. shall be used only for a part of the model number that does not indicate flexible demand appliance design or performance;

2. shall represent a single letter, number, blank, or other character at the asterisk's location in the model number; and

3. shall not be used for any of the first four letters, numbers, blanks, or other characters in the model number.

(C) the name, address, telephone number, e-mail address, and, if available, fax number and URL (web site) address of the manufacturer; provided, however, that if a parent entity is filing on behalf of a subsidiary entity, if a subsidiary entity is filing on behalf of a parent entity, or if an affiliate entity is filing on behalf of an affiliate entity, then each entity shall be clearly identified, and the information shall be provided for both entities.

(D) the name, address, telephone number, e-mail address, and, if available, fax number of the individual to contact concerning the statement pursuant to section 1695(a)(2)(H) of this Article.

(E) the name, address, telephone number, e-mail address, and, if available, fax number of the person signing the declaration pursuant to section 1695(a)(2)(H) of this Article.

(F) the name and address and, if available, telephone number, fax number, URL (web site) address, and e-mail address of the laboratory or other institution where the testing required by section 1692 of this Article was performed.

(G) the statement shall include testing and performance information required for that appliance as listed in section 1696 of this Article.

(H) each statement shall include a declaration, executed under penalty of perjury of the laws of California, that:

1. all the information provided in the statement is true, complete, accurate, and in compliance with all applicable provisions of this Article;

2. the requirements of section 1695(a)(2) of this Article have been and are being complied with;

3. for appliances for which there is a flexible demand appliance standard in section 1693 of this Article, that the appliance complies with the applicable standards in this Article;

4. the appliance was tested under the applicable test method specified in section ~~1693~~1698 of this Article. If section ~~1693~~1698 of this Article provides more than one test method that may be used, the manufacturer shall identify which method was used; and

5. all units of the appliance are marked as required by section 1693 of this Article.

(I) Identifiers, when referenced in relation to section 1696 of this Article for data submittal requirements, means those fields shown in section 1696 of this Article for each specific appliance type that, when taken in combination for a specific model of a specific appliance type, represent the criteria for designating a model. At a minimum, each specific appliance type's model "identifiers" will include (a) manufacturer, (b) brand, and (c) model number. Individual appliance types may include additional fields as identifiers. All identifiers are represented in section 1696 of this Article by an asterisk ("*"). For purposes of compliance with section 1695(e)(1) of this Article, the identifiers represent fields that cannot be modified.

(J) Testing and Performance Data Information.

1. A statement that the appliance has been tested to the requirements of Section 1698.

2. The name and address and, if available, telephone number, fax number, URL (website) address, and e-mail address of the laboratory or other institution where the testing as listed in Table C-1 of Section 1696 was performed.

(3) Any electronic filing to the flexible demand program database constitutes a representation by the person making the filing that:

(A) the person will electronically acknowledge receipt through the flexible demand program database of all electronic communications concerning the filing from the Executive Director through the flexible demand program database to the person;

(B) all electronic communications concerning the filing from the Executive Director through the flexible demand program database to the person shall be deemed received by the person upon notification to the Executive Director, by the computer from which the Executive Director communication has been sent, that the communication has been sent; and

(C) all electronic communications concerning the filing from the person to the Executive Director shall be deemed received by the Executive Director only upon actual receipt.

(b) Review of Statements by the Executive Director.

(1) The Executive Director may determine whether a statement is complete, accurate, and in compliance with all applicable provisions of this Article, and whether the appliance for which the statement was submitted complies with all applicable standards in section 1693 of this Article.

(2) In this subsection, “manufacturer” also includes a third-party certifier filing a statement under section 1695(f) of this Article.

(3) Complete and Accurate Statement. If the Executive Director determines that the statement is complete and accurate and that the appliance complies with all applicable standards, the Executive Director shall:

(A) immediately include the appliance in the flexible demand program database; and

(B) inform the manufacturer's flexible demand program database designated contact person or the third-party certifier’s Flexible Demand Program Database designated contact person electronically of the determination within 30 calendar days after receipt by the Executive Director.

(4) Incomplete Statement. If the Executive Director determines that a statement is not complete, or that the statement does not contain enough information to determine whether it is accurate or whether the appliance complies with an applicable standard:

(A) the Executive Director shall return the statement through the flexible demand program database to the manufacturer's flexible demand program database designated contact person with an explanation of its defects and a request for any necessary additional information within 30 calendar days after receipt by the Executive Director.

(B) the manufacturer shall refile the statement through the flexible demand program database with all information requested by the Executive Director.

(C) the Executive Director shall review the refiled statement.

(5) Statement is Inaccurate or Appliance Does Not Comply. If the Executive Director determines that the statement is inaccurate or that the appliance does not comply with an applicable standard:

(A) the Executive Director shall reject the statement and return it through the flexible demand program database to the manufacturer's flexible demand program database designated contact person with an explanation of its defects within 30 calendar days after receipt by the Executive Director, to the extent practicable.

(B) the manufacturer may submit a revised statement through the flexible demand program database for the appliance.

(c) Flexible Demand Program Database.

(1) The Executive Director shall maintain a database of appliance models complying with flexible demand standards known as the “flexible demand program database” consisting of two parts:

(A) “Approved flexible demand program database.” The Approved flexible demand program database shall contain information on all appliances that are currently in production, for which complete and accurate statements have been received and approved pursuant to this Article, and that have not been removed from the flexible demand program database pursuant to sections 1695(c)(2), 1695(d)-(e), or 1697 of this Article.

(B) “Archived flexible demand program database.” The Archived flexible demand program database shall contain, at least, information on all appliances that:

1. are no longer in production, for which complete and accurate statements have been received pursuant to section 1695(a) of this Article; or

2. have been removed from the Approved flexible demand program database pursuant to sections 1695(c)(2) or 1695(e)(2) of this Article.

(2) Confirmation of flexible demand program database Listings. The Executive Director may, by electronically writing to the most recent electronic address filed pursuant to section 1695(a)(2)(D) of this Article and request each manufacturer of an appliance listed in the flexible demand program database to confirm the validity of the information in each of its flexible demand program database listings.

(A) If within 30 calendar days of the electronic mailing there is no such reply, the appliance may be removed from the Approved flexible demand program database and moved into the Archived flexible demand program database.

(B) If the lack of compliance with any requirements of this Article is strictly limited to non-compliance with standards adopted since the most recent filing by the manufacturer:

1. all affected models may be moved from the Approved flexible demand program database to the flexible demand program database. After the models have been moved, all affected manufacturers will be notified through the flexible demand program database or via email.

2. the effective date for moving such affected models to the Archived flexible demand program database will be the effective date of the new standard.

(3) Records Retention. Notwithstanding any other provision of this Article, flexible demand program database listings that have not been confirmed within ten (10) years of original submittal or subsequent confirmation shall be presumed to be for products no longer in production and shall be automatically removed from the Approved flexible demand program database and moved into the Archived flexible demand program database.

(A) The Executive Director may, by electronically writing to the most recent electronic address filed pursuant to section 1695(a)(2)(D) of this Article and request the attestation and records required by section 1693(c)(3)(B) of this Article. If within 30 days of the electronic mailing there is no such reply, the CEC will issue a 30-day compliance notice to submit required documentation. If within the 30 days of the electronic mailing there is no reply, the appliance may be considered non-compliant, removed from the Approved flexible demand program database, and moved into the Archived flexible demand program database.

(d) Assessment of Completeness, Accuracy, and Compliance of Manufacturer Statements.

(1) If the statement is incomplete or inaccurate, or if the Executive Director determines that the statement otherwise fails to comply with any of the requirements of this Article then the Executive Director may, no sooner than ten working days after providing electronic notice to the person designated in section 1695(a)(2)(D) of this Article, remove the appliance from the flexible demand program database.

(e) Modified and Discontinued Appliances.

(1) Modified Appliances.

(A) If any of the appliance characteristics listed in flexible demand program database do not match the characteristics of the appliance being sold or offered for sale, rented, imported, distributed or leased for use in California the manufacturer shall file a new statement for the appliance, including all the characteristics needing update.

(B) Upon receipt of such a statement, the Executive Director shall review the statement under section 1695(b) of this Article. If the statement is complete, accurate, and in compliance with all applicable standards, the Executive Director shall modify the flexible demand program database.

(2) Discontinued Appliances.

(A) After any appliance has ceased being sold or offered for sale, rented, imported, distributed, or leased for use in California, the manufacturer shall file a statement only containing the identifiers shown section 1696 of this Article for the appliance.

(B) Upon receipt of such a statement, the Executive Director shall review the statement under section 1695(b) of this Article. If the statement is complete, accurate, and in compliance with all applicable provisions of this Article, the Executive Director shall move the appliance from the Approved flexible demand program database to the Archived flexible demand program database.

(f) Filing by Third-Party Certifier.

(1) A third party may file a statement on behalf of a manufacturer as required in section 1695(a) of this Article.

(2) Whether a manufacturer files information required by this section by itself or via a third-party certifier, the manufacturer remains responsible for the truth, accuracy, completeness, and timeliness of all required filings.

(3) Upon a finding of noncompliance with an applicable provision of this Article, the Executive Director may suspend a third-party certifier from making filings, allow continued filings under specific conditions, or remove affected appliances from the flexible demand program database.

~~Credits~~

~~Note~~NOTE: Authority cited: Sections 25213, 25218, 25402(~~f~~e) and 25402.11, Public Resources Code. Reference: Sections 25216.5(d), 25402(~~f~~e), 25402.11, 25534.2 Public Resources Code.

§1696. Data Submittal Requirements.

The data submittal requirements shown in this section are required pursuant to section 1695 of this Article.

(a) All appliances.

(1) The data submittal requirements shown in Table A-1 are required for all appliances subject to this Article.

Table A-1: Data Submittal Requirements for All Appliances

Required Information	Possible Answers
* Manufacturer's Name	
* Brand Name	
* Model Number	
Is a connected device or connected ready device	Connected Device, Connected Ready Device, Neither

* Identifier information as described in section 1695(a)(2)(I) of this Article.

(2) The data submittal requirements shown in Table A-2 are required for any appliance that is a connected device, as defined in section 1691 of this Article.

Table A-2: Data Submittal Requirements for All Connected Devices

Required Information	Possible Answers
Unit has a unique logical identification accessible to authorized entities	True, false
Only authorized entities are allowed to change the software configuration	True, false
Unit has data protection for personal information	True, false
Unit requires a user to generate a new means of authentication before access is granted to the device for the first time	True, false
Device supports plain text passwords	True, false
Plain text passwords, if supported, can be six characters or longer	True, false, not applicable
Plain text passwords, if supported, can include a combination of alpha, numeric, and special characters	True, false, not applicable
Unit allows authorized entities to check for software updates from the manufacturer, and to receive and apply available updates	True, false
Manufacturer provides security update policy and end of security support date	True, false
At restart, unit automatically restores recently saved settings	True, false
At restart, unit automatically restores recently saved network connection	True, false
Unit automatically attempts to reconnect after loss of connection	True, false
Unit allows the local users to override the schedule and/or delay timer	True, false

The unit allows authorized entities to change its settings	True, false
Unit allows the user to restore default settings	True, false

… [Skipping subdivision (b) Pool Controls.]

(c) HVAC thermostats.

(1) The data submittal requirements shown in Table C-1 are required for HVAC thermostats.

Table C-1: Data Submittal Requirements for HVAC Thermostats.

ID#	Required Information	Possible Answers
0.1	Manufacturer attests that unit meets the definition of a connected device in Section 1691.	True, False
0.2	Unit is listed in the applicable Energy Commission's Flexible Demand Title 20 certification database and the manufacturer, brand, and model number correspond to the UUT.	True, False
0.3	Manufacturer attests that the unit meets the Virtual End Node (VEN) requirements specified in the OpenADR 3.1 standard.	True, False
0.4	Name and version of the unit's supported Energy Commission-approved open standards communication protocol for demand response participation.	Enter protocol and version
0.5	Unit supports the required Energy Commission-approved open standards communication protocol for demand response participation and is capable of handling demand response events.	True, False
0.6	Unit has a unique logical identifier.	True, False
0.7	Manufacturer provides a written consumer data protection or privacy policy applicable to the unit.	True, False
0.8	Location of the consumer data protection or privacy policy is readily apparent within documentation provided with or referenced by the unit.	True, False
0.9	Consumer data protection or privacy policy states that the unit does not collect categories of personal information unrelated to or unnecessary for the function of the unit.	True, False
0.10	Consumer data protection or privacy policy states that personal information collected by the unit is not transmitted or used for purposes other than for the function of the unit.	True, False
0.11	Autoflex operating mode and autoflex operating schedule are enabled by default in the out-of-the-box condition.	True, False
0.12	Unit uses the MIDAS static dataset by default when internet connectivity is unavailable.	True, False
0.13	Integral physical user interface allows consumers to request an update of the MIDAS static dataset.	True, False
0.14	Unit can receive updates to the MIDAS static dataset when connected to a consumer-provided internet service	True, False

	or when connected to the thermostat manufacturer's cloud services.	
0.15	Default RIN identified for the unit.	Enter Default RIN
0.16	Test method version used for performance verification.	Enter test method version
0.17	Manufacturer attests that unit does not rely solely on a manufacturer or third-party service whose discontinuation renders required demand response functionality unavailable.	True, False
0.18	Manufacturer attests that unit can operate with all connected flexible demand functionality without connecting to manufacturer cloud.	True, False
0.19	Unit automatically switches to dynamic dataset from the static dataset when internet connection is introduced to the UUT.	True, False
0.20	Manufacturer attests that MIDAS dataset retrieval occurs through an application programming interface using open internet protocols.	True, False
0.21	Manufacturer attests that a written attestation with the amended certification will be submitted in accordance with Section 1693(c)(3)(B) when future firmware updates materially alter applicable flexible demand functionality and require amended certification.	True, False
0.22	Manufacturer attests that firmware updates do not degrade required flexible demand functionality.	True, False
0.23	Manufacturer attests that unit stores software to generate and implement autoflex operating schedules from MIDAS dataset and to retain or to regenerate the active schedule.	True, False
0.24	Demand response functionality requires express consumer authorization to opt in.	True, False
1.1	Unit stores the Energy Commission-defined MIDAS static dataset in non-volatile integral memory.	True, False
1.2	Unit stores the default RIN corresponding to the MIDAS default dynamic dataset.	True, False
1.3	With internet connectivity unavailable, unit uses the MIDAS static dataset.	True, False
1.4	With internet connectivity available and no test RIN entered, unit retrieves and uses the MIDAS dynamic dataset corresponding to the default RIN.	True, False
1.5	With internet connectivity available and the test RIN entered, unit retrieves and uses the MIDAS dynamic dataset corresponding to the test RIN.	True, False
1.6	MIDAS static dataset extracted from the unit matches the applicable reference dataset except for differences permitted by the Dataset Comparison Allowlist.	True, False
1.7	MIDAS default dynamic dataset extracted from the unit matches the applicable reference dataset except for	True, False

	differences permitted by the Dataset Comparison Allowlist.	
1.8	MIDAS consumer-entered dynamic dataset extracted from the unit matches the applicable reference dataset except for differences permitted by the Dataset Comparison Allowlist.	True, False
1.9	Unit can store at least two RINs (consumer or authorized entity).	True, False
1.10	Consumer-entered RIN requires affirmative action.	True, False
2.1	Unit retains the MIDAS dynamic dataset autoflex operating schedule and associated RIN through the specified short-duration loss of external power.	True, False
2.2	Unit retains the MIDAS dynamic dataset autoflex operating schedule and associated RIN through the specified long-duration loss of external power.	True, False
2.3	Unit retains the MIDAS static dataset autoflex operating schedule through the specified short-duration loss of external power.	True, False
2.4	Unit retains the MIDAS static dataset autoflex operating schedule through the specified long-duration loss of external power.	True, False
2.5	Unit automatically restores applicable programmed settings upon restart following the specified power-loss conditions.	True, False
3.1	Unit can generate and maintain a baseline operating schedule with autoflex disabled.	True, False
3.2	Unit generates and implements autoflex operating schedules using the MIDAS static dataset in price, GHG, and combined signal types when autoflex is enabled.	True, False
3.3	Unit generates and implements autoflex operating schedules using the MIDAS default dynamic dataset in price, GHG, and combined signal types when autoflex is enabled.	True, False
3.4	Unit generates and implements autoflex operating schedules using the MIDAS consumer-entered dynamic dataset in price, GHG, and combined signal types when autoflex is enabled.	True, False
3.5	Autoflex operating schedules demonstrate measurable differentiation from the baseline operating schedule for all required dataset and signal type combinations.	True, False
3.6	Consumer may enable or disable autoflex.	True, False
3.7	Disabling autoflex does not impair basic thermostat or space-conditioning functionality.	True, False
3.8	Consumer can override active autoflex operating schedules using the MIDAS static dataset in price, GHG, or combined signal types.	True, False

3.9	Consumer can override active autoflex operating schedules using the MIDAS default dynamic dataset in price, GHG, or combined signal types.	True, False
3.10	Consumer can override active autoflex operating schedules using the MIDAS consumer-entered dynamic dataset in price, GHG, or combined signal types.	True, False
3.11	Autoflex operation resumes following termination or expiration of a consumer override.	True, False
3.12	Autoflex adjustments do not exceed consumer-defined comfort bounds.	True, False
4.1	Unit retains applicable system settings, including the operating schedule and local time for at least 72 hours following loss of external power.	True, False
4.2	The unit's time compared to reference clock is within 15 minutes pre-power outage and post-power restoration resync.	True, False
4.3	Following the 72-hour loss of external power, the absolute time difference does not exceed 2 minutes.	True, False
4.4	Following restoration of external power without internet connectivity, unit resumes autoflex operation using the MIDAS static dataset.	True, False
4.5	Unit automatically attempts to reconnect to the internet when internet connectivity becomes available following loss of connectivity.	True, False
4.6	Following restoration of internet connectivity, unit automatically retrieves and resumes operation using the MIDAS dynamic dataset corresponding to the active RIN.	True, False
4.7	Unit implements the required MIDAS dataset fallback hierarchy when an applicable MIDAS dynamic dataset cannot be retrieved.	True, False
4.8	Unit automatically synchronizes its system clock to local time within 24 hours of connectivity being enabled and when an internet connection is available.	True, False
5.1	Integral physical user interface indicates when autoflex is enabled.	True, False
5.2	Integral physical user interface indicates MIDAS static dataset operation.	True, False
5.3	Integral physical user interface indicates MIDAS default dynamic dataset operation.	True, False
5.4	Integral physical user interface indicates MIDAS consumer-entered dynamic dataset operation.	True, False
5.5	Integral physical user interface indicates price signal type.	True, False
5.6	Integral physical user interface indicates GHG signal type.	True, False
5.7	Integral physical user interface indicates combined signal type.	True, False
5.8	Integral physical user interface displays the current indoor temperature.	True, False

5.9	Integral physical user interface displays the current temperature setpoint.	True, False
5.10	Required user-interface information is directly displayed or accessible within no more than three user navigation actions from the primary status or settings screen.	True, False
5.11	Integral physical user interface indicates an active demand response event.	True, False
5.12	Integral physical user interface displays price or GHG emissions signals in relative, categorical, or descriptive form.	True, False
6.1	MIDAS dynamic dataset retrieval interval does not exceed 26 hours.	True, False
6.2	Unit provides a user notification when MIDAS dataset update failure persists beyond 26 hours.	True, False
7.1	Upon expiration of a demand response event, the pre-event autoflex conditions and operating schedules are restored.	True, False
7.2	Consumer override during a demand response event terminates the event and restores the pre-event autoflex conditions and operating schedule.	True, False
7.3	Disabling autoflex does not impair demand response functionality.	True, False
7.4	Unit constrains temperature setpoints associated with demand response events to the consumer-defined comfort bounds.	True, False
7.5	Unit is capable of receiving and implementing demand response operating schedules.	True, False
7.6	Unit temporarily overrides the active autoflex operating schedule or consumer-defined schedule solely for the duration of the event.	True, False
8.1	If applicable, when unit is configured for gas heating, enabling autoflex does not modify the heating operating schedule.	True, False
8.2	If applicable, the autoflex operating schedule shall not increase or decrease electricity fossil fuel consumption by the system it operates.	True, False
P.1	Factory reset re-enables autoflex.	True, False
P.2	Factory reset restores the most recently updated MIDAS static dataset.	True, False
P.3	Factory reset restores the unit to factory default demand response settings.	True, False
P.4	Factory reset clears any consumer-entered RIN.	True, False
P.5	After factory reset the default RIN is maintained.	True, False

~~Credits:~~

~~Note~~NOTE: Authority cited: Sections 25213, 25218, 25402(~~f~~e) and 25402.11, Public Resources Code. Reference: Sections 25216.5(d), 25402(~~f~~e), 25402.11, 25534.2 Public Resources Code.

… [Skipping §1697]

§1698. Test Methods.

Testing requirements for specified appliances.

(a) Pool Controls.

Test Method for pool controls is not required.

(b) Reserved.

(c) HVAC thermostats.

Test Method for HVAC thermostats. The test method for HVAC thermostats is Flexible Demand Appliance Standards Test Method for HVAC thermostats, Version 1.0, (date TBD), California Energy Commission. Refer to **Table AA-1** for Test Methods by Reference.

Table AA-1: Test Methods by Reference

ID #	Code Section	Test Subject	Available At
1	California Title 20, Division 2, CHAPTER 4.1, Section 1698	Flexible Demand Appliance Standards Test Method for HVAC Thermostats, Version 1.0 (date TBD)	California Energy Commission 715 P Street, Sacramento, California 95814 (link to the test document - TBD)

NOTE: Authority cited: Sections 25213, 25218, 25402(e) and 25402.11, Public Resources Code. Reference: Sections 25216.5(d), 25402(e) and 25402.11, Public Resources Code.