



To: Honorable Public Utilities Board

Submitted by: / S /
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From: Vidhi Chawla
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Approved by: / S /
Nicolas Procos
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Subject: By Motion, Recommend that City Council Adopt an All-Electric New Construction Ordinance

RECOMMENDATION

By motion, recommend that city council adopts an all-electric new construction ordinance.

BACKGROUND

In March 2019, the City Council declared a climate emergency and joined a global effort to get to net zero emissions as soon as possible. In September 2019, the City Council adopted an updated and revised Climate Action and Resiliency Plan (CARP) with the goal of lowering citywide greenhouse (GHG) emissions 50 percent below 2005 levels by 2030 and achieving the vision of net zero emissions as soon as possible. With Alameda Municipal Power (AMP) now providing 100 percent clean electricity, Alameda’s GHG emissions from buildings comes primarily from natural gas consumption. The CARP identifies the need to reduce GHG emissions from the use of natural gas in new and existing buildings in the community.

In November 2019, the City Council adopted a resolution limiting natural gas infrastructure for new residential construction on city owned property. The proposed ordinance would expand and strengthen the Council’s 2019 resolution, by requiring all-electric new construction in all new buildings (both residential and commercial) to all public and private property in Alameda.

DISCUSSION

As of March 2021, more than 40 jurisdictions across California, including San Francisco, Oakland, San Jose, Berkeley, Richmond, Hayward and others, have adopted ordinances to limit or eliminate the use of natural gas in new buildings, a significant contributor to GHG emissions. Building on similar ordinances recently passed by neighboring jurisdictions, an “all-

electric” reach code¹ ordinance will be presented for Council’s consideration. The reach code would be applied at permit application for all new buildings seeking construction permits after the ordinance is adopted by Council and approved by the California Energy Commission.

The new reach code requirements for newly constructed buildings are proposed as follows:

1. All-Electric Requirement: Requires all newly constructed residential and non-residential buildings to be built all-electric, meaning that the buildings will have no natural gas or propane plumbing installed, and that electricity will be the sole source of energy for all space heating, water heating, cooking appliances, and clothes drying appliances, with some exceptions.
2. Rooftop Solar Requirement: Requires solar photovoltaic systems on new high-rise residential and non-residential buildings covering 15 percent of the roof area, with exceptions allowed for shading or over generation.

The proposed exceptions to the all-electric requirements are:

1. Commercial kitchen cooking appliances for a restaurant open to the public or an employee cafeteria in a newly constructed building.
2. Non-electric space heating and process systems in newly constructed buildings containing occupancies F, H, or L (e.g. manufacturing, laboratories, or other specialty R&D). To take advantage of this exception applicant shall provide third party verification approved by the City that All-Electric process system requirement is not cost effective or feasible.
3. Accessory Dwelling Units constructed on a parcel with an existing residential building with gas infrastructure.
4. Newly constructed buildings with a valid planning entitlement or Development Agreement approved prior to the effective date of the Ordinance.
5. If there is not an all-electric prescriptive pathway for a building under the state Energy Code, and the building is unable to achieve the Energy Code’s performance compliance pathway using commercially available technology and an approved calculation method, then the building official has the authority to grant a modification.

Buildings invoking these exceptions must provide additional and supplemental electric infrastructure for future electrification.

Adoption of such an ordinance will support City’s GHG reduction goals and is also aligned with AMP’s strategic plan. AMP staff already includes a forecast of additional load due to building electrification in the various planning processes and expects that the load growth from new all-electric buildings would be gradual and could be supported using existing AMP’s distribution infrastructure in the near term.

¹ A reach code is a local building energy code that “reaches” beyond the state minimum requirements for energy use in building design and construction

The Public Utilities Board (PUB) has no formal role in developing and implementing the new reach code. City staff has requested this item be brought to PUB for a recommendation to support the item when presented to the Council.

FINANCIAL IMPACT

AMP staff anticipates that the load growth from electrification of new buildings will not require significant near-term investments in new distribution infrastructure and is currently evaluating long term needs.

LINKS TO STRATEGIC PLAN AND METRICS

Sustainability

Strategy 1: AMP will deliver and maintain 100 percent carbon-neutral energy resources by 2020 and beyond.

Tactic 2: Distributed Energy Resources (DER) Plan

Strategy 2: AMP will support opportunities in the electrification of the transportation system and buildings to reduce GHG emissions.

Tactic 2: Promote energy efficiency and building electrification

EXHIBIT

- A. Adopted Resolution of the Planning Board Recommending that the City Council of the City of Alameda Require Newly Constructed Buildings to be All-Electric.

DRAFT PLANNING BOARD
RESOLUTION NO.

A RESOLUTION OF THE PLANNING BOARD RECOMMENDING THAT THE CITY COUNCIL OF THE CITY OF ALAMEDA AMEND THE ALAMEDA MUNICIPAL CODE BY AMENDING: (1) ARTICLE I (UNIFORM CODES RELATING TO BUILDING, HOUSING AND TECHNICAL CODES) OF CHAPTER XIII (BUILDING AND HOUSING) TO ADOPT ALAMEDA LOCAL AMENDMENTS TO THE 2019 EDITION OF THE CALIFORNIA ENERGY CODE TO REQUIRE NEWLY CONSTRUCTED BUILDINGS TO BE ALL-ELECTRIC.

WHEREAS, the California State Building Standards Commission approved and published the 2019 edition of the California Building Standards Code on July 1, 2019, and such code will be effective 180 days thereafter, which is January 1, 2020; and

WHEREAS, the 2019 California Building Standards Code includes the 2019 California Energy Code; and WHEREAS, California Health and Safety Code Sections 17958.7 and 18941.5 provide that the City may make changes or modifications to the building standards contained in the California Building Standards Code based upon express findings that each such change or modification is reasonably necessary because of local climatic, geological, or topographical conditions; and

WHEREAS, the Council has adopted a resolution making express findings, in accordance with Health and Safety Code Sections 17958.5, 17958.7, and 18941.5, that each of the local amendments to the 2019 California Energy Code, are reasonably necessary because of local climatic, geological, topographic, and environmental conditions; and

WHEREAS, consistent with the City's Climate Action and Resiliency Plan, the local amendments to the 2019 California Energy Code establish requirements to increase energy efficiency and the use of renewable energy, including in particular solar energy, which will reduce demands for local energy and resources, reduce regional pollution, and promote a lower contribution to greenhouse gases emissions as evidenced by the statewide cost-effectiveness studies prepared by the California Statewide Investor Owned Utilities Codes and Standards Program, which demonstrate the potential for both a reduction in emissions and energy usage; and

WHEREAS, cost effectiveness studies prepared by the California Statewide Investor Owned Utilities Codes and Standards Program in conjunction with the City's consultant, demonstrate that the local amendments are cost-effective and do not result in buildings consuming more energy than is permitted by the 2019 California Energy Code; and

WHEREAS, local amendments to the 2019 California Energy Code were the subject of a public meeting conducted on April 27 (Planning Board), in addition to this

evening's meeting, at which attendees included architects, energy modelers, designers, builders, developers, and residents; and

WHEREAS, once adopted by the City Council, the local amendments to the 2019 California Energy Code will, in accordance with Public Resources Code Section 25402.1(h)(2) and Section 10-106 of the 2019 California Administrative Code (Title 24, Part 1), be submitted to the California Energy Commission for approval, following which approval the local amendments will be returned to the City Council for final adoption; and

NOW, THEREFORE, the Planning Board recommends that the City Council amend the Alameda municipal code as follows:

Section 1: RECITALS

The City Council finds the foregoing recitals to be true and correct and hereby incorporates those recitals into this Ordinance.

Section 2: PURPOSE AND INTENT

It is the purpose and intent of this Ordinance to adopt the local amendments to the 2019 California Energy Code (Title 24, Part 6) that provide local, cost effective standards for new residential, non-residential, and hotel and motel buildings that exceed the minimum standards of the 2019 California Energy Code and 2019 California Green Building Standards Code to achieve energy savings, reduce local pollution, and reduce greenhouse gas emissions.

Section 3: LOCAL AMENDMENTS TO ENERGY CODE

Article I (UNIFORM CODES RELATING TO BUILDING, HOUSING AND TECHNICAL CODES) of Chapter XIII (BUILDING AND HOUSING) of the Alameda Municipal Code, is hereby amended as follows (underlined for additions and ~~strike through~~ for deletions):

13-11 – ALAMEDA ENERGY CODE.

13-11.1 – Adoption of California Energy Code.

The 2019 Edition of California Energy Code published by the California Building Standards Commission, is adopted by reference and made a part hereof as if fully set forth herein at length, and shall be known as the Alameda Energy Code.

13-11.2 – Copy of California Energy Code.

A copy of the 2019 Edition of the California Energy Code shall be maintained by the Building Official for use and examination by the public.

13-11.3 – Local Amendments.

Notwithstanding any provisions of the 2019 California Energy Code, 2019 California Green Building Standards Code, or other codes adopted by any Chapter in the Alameda Municipal Code to the contrary, the local amendments to the Energy Code set forth in this Section shall apply and are hereby amended as follows (underlined for additions and strike through for deletions):

SECTION 100.0 – SCOPE

[...]

(e) **Sections applicable to particular buildings.** TABLE 100.0-A and this subsection list the provisions of Part 6 that are applicable to different types of buildings covered by Section 100.0(a).

1. **All buildings.** Sections 100.0 through 110.12 apply to all buildings.

EXCEPTION to Section 100.0(e)1: Spaces or requirements not listed in TABLE 100.0-A.

2. **Newly constructed buildings.**

A. All newly constructed buildings. Sections 110.0 through 110.12 apply to all newly constructed buildings within the scope of Section 100.0(a). In addition, newly constructed buildings shall meet the requirements of Subsections B, C, D or E, as applicable; and shall be an All-Electric Building as defined in Section 100.1(b).

Exception 1: Commercial kitchen cooking appliances for a restaurant open to the public or an employee cafeteria in a newly constructed building..

Exception 2: Non-electric space heating and process systems in newly constructed buildings containing occupancies F, H, or L. To take advantage of this exception applicant shall provide third party verification approved by the City that All-Electric process system requirement is not cost effective or feasible.

Exception 3: Accessory Dwelling Units constructed on a parcel with an existing residential building with gas infrastructure.

Exception 4: Newly constructed buildings with a valid planning entitlement or Development Agreement approved prior to the effective date of the Ordinance.

Exception 5: The Building Official may grant a modification to the requirements set forth herein, if s/he finds: (1) there is no all-electric prescriptive compliance pathway for the building under the Energy Code, and (2) the building is not able to achieve the performance compliance standard applicable to the building under the Energy Code using commercially available technology and an approved calculation method.

Note 1: If natural gas appliances are used in any of the above exceptions 1-6, natural gas appliance locations must also be electrically pre-wired for future electric appliance installation. They shall include the following:

1. A dedicated circuit, phased appropriately, for each appliance, with a minimum amperage requirement for a comparable electric appliance (see manufacturer's recommendations) with an electrical receptacle or junction box that is connected to the electric panel with conductors of adequate capacity, extending to within 3 feet of the appliance and accessible with no obstructions. Appropriately sized conduit may be installed in lieu of conductors;
2. Both ends of the conductor or conduit shall be labeled with the words "For Future Electric appliance" and be electrically isolated;
3. A circuit breaker shall be installed in the electrical panel for the branch circuit and labeled for each circuit, an example is as follows (i.e., "For Future Electric Range;") and
4. All electrical components, including conductors, receptacles, junction boxes, or blank covers, related to this section shall be installed in accordance with the California Electrical Code.

Note 2: If any of the exceptions 1-3 are granted, the Building Official shall have the authority in his/her discretion to approve alternative materials, design and methods of construction or equipment pursuant to California Building Code section 104 (Duties and Powers of Building Official).

[...]

SECTION 100.1

DEFINITIONS AND RULES OF CONSTRUCTION

(a) Rules of Construction.

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 to make the provision applicable. Where compliance with one or more elements suffices, or where existence of one or more elements makes the provision applicable, “or” (rather than “and/or”) is used.
 3. “Shall” is mandatory and “may” is permissive.
- (b) **Definitions.** Terms, phrases, words and their derivatives in Part 6, shall be defined as specified in Section 100.1. Terms, phrases, words and their derivatives not found in Section 100.1 shall be defined as specified in the “Definitions” chapters of Title 24, Parts 1 through 5 of the California Code of Regulations. Where terms, phrases, words and their derivatives are not defined in any of the references above, they shall be defined as specified in *Webster’s Third New International Dictionary of the English Language, Unabridged* (1961 edition, through the 2002 addenda), unless the context requires otherwise.

[...]

ALL ELECTRIC BUILDING is a building that has no natural gas or propane plumbing installed within the building property lines, and instead uses only electricity as the source of energy for its space heating, water heating (including pools and spas), cooking appliances, and clothes drying appliances. All Electric Buildings may include solar thermal pool heating, or fossil fuels for backup power generation.

[...]

**SUBCHAPTER 5
NONRESIDENTIAL, HIGH-RISE RESIDENTIAL, AND HTOEL/MOTEL
OCCUPANCIES—PERFORMANCE AND PRESCRIPTIVE COMPLIANCE
APPROACHES FOR ACHIEVING ENERGY EFFICIENCY**

Additional Topics:

**SECTION 140.0 – PERFORMANCE AND PRESCRIPTIVE COMPLIANCE
APPROACHES**

Nonresidential, high-rise residential and hotel/motel buildings shall comply with all of the following:

(a) The requirements of Sections 120.0-130.5 (mandatory measures for nonresidential, high-rise residential and hotel/motel buildings).

(b) The requirements of Sections 120.0 through 130.5 (mandatory measures for nonresidential, high-rise residential and hotel/motel buildings), and for all newly constructed buildings:

1. A solar photovoltaic system equivalent in size to 15 percent of the roof area, excluding any skylight area, shall be installed on the roof or overhang of the building or on the roof or overhang of another structure located within 250 feet of the building or on covered parking installed with the building project.

Exception 1 to 140.0(b)1: The Building Official or his/her designee may grant a modification if the applicant demonstrates that the required percentage of PV installation will over-generate the annual kWh required to operate the proposed building;

Exception 2 to 140.0(b)1: The PV system size may be reduced in size to the maximum that can be accommodated by the effective annual solar access due to shading from existing permanent natural or manmade barriers external to the building, including but not limited to trees, hills, and adjacent structures. The effective annual solar access shall be 70 percent or greater of the output of an unshaded PV array on an annual basis. No PV system is required if the effective annual solar access is restricted to less than 200 contiguous square feet. If the applicant demonstrates that conditions exist where excessive shading occurs, a performance equivalency approved by the Building Official may be used as an alternative.

Exception 3 to 140.0(b)1: Vegetative roofs covering 35 percent of the roof area or greater, meeting all relevant code requirements including considerations for wind, fire, and structural loads.

(c) Either performance compliance approach (energy budgets) specified in Section 140.1 or the prescriptive compliance approach specified in Section 140.2 for the Climate Zone in which the building is located. Climate zones are shown in Figure 100.1-A.

NOTE to Section 140.0(c): The Commission periodically updates, publishes, and makes available to interested persons and local enforcement agencies precise descriptions of the Climate Zones, which is available by zip code boundaries depicted in the Reference Joint Appendices along with a list of the communities in each zone.

NOTE to Section 140.0: The requirements of Sections 140.1 through 140.9 apply to newly constructed buildings. Section 141.0 specifies which requirements of Sections 140.1 through 140.9 also apply to additions or alterations to existing buildings.

NOTE: Authority: Sections 25213, 25218, 25218.5, 25402 and 25402.1, Public Resources Code. Reference: Sections 25007, 25008, 25218.5, 25310, 25402, 25402.1, 25402.4, 25402.5, 25402.8, and 25943, Public Resources Code.

13-11.4 – Findings.

Pursuant to Sections 17958.5 and 17958.7 of the California Health and Safety Code, the City Council finds that each of the modifications of the 2019 Edition of the California Energy Code contained in Section 13-11.3, are reasonably necessary because of certain local climatic, geographical and topographical conditions existing in the City of Alameda which are more specifically described as follows:

- a. Climatic: The City is located in Climate Zone 3 in the 2019 Edition of the California Energy Code. Climate Zone 3 incorporates mostly coastal communities from Marin County to southern Monterey County including San Francisco. Alameda is already experiencing the repercussions of excessive greenhouse gas emissions including increased temperatures and more extreme weather events, decreased precipitation, and impacts of increased wildfire risk. From 2012 to 2017, Alameda, experienced one of the worst droughts on record. These climatic conditions, along with the greenhouse emissions generated from structures in both the residential and non-residential sectors, led to severe environmental impacts and accordingly require Alameda to exceed the energy standards for building construction established in the 2019 Edition of the California Buildings Standards Code. Human activities, such as burning natural gas to heat buildings, releases greenhouse gases into the atmosphere and causes an overall increase in global average temperature. These conditions contribute to sea level rise and persistent, seemingly omnipresent wildfires, affecting the City's shoreline and infrastructure, in addition to the health of its residents, which Alameda is particularly vulnerable to as an island community abutting the San Francisco Bay.
- b. Geologic: Alameda is subject to earthquake hazard caused by its proximity to both the Hayward and San Andreas faults. Both of these faults are considered active faults which may rupture at any time. The USGS estimates that an earthquake greater than magnitude 6.7 has a 72 percent chance of occurring in the Bay Area before 2043. An earthquake on one of these faults will likely result in widespread liquefaction damaging buildings and buried infrastructure. Reducing the reliance on natural gas will decrease the risk of fires when gas lines rupture and break or gas appliances topple in

earthquakes. Restoring full natural gas service following a major earthquake may take up to six months, compared to about two weeks for electricity.¹

- c. Topographic: The main island of the City of Alameda is a low-lying island in the San Francisco Bay, resulting in high groundwater table, particularly during winter storms, which can damage buried infrastructure (why does this mean gas is better?). Additionally, as an island community with access dependent upon bridges and underwater tubes that could make access in the event of a disaster a challenge. As indicated above, restoring electrical services takes far less time than gas service.

Section 4: IMPLIED REPEAL

Any provision of the Alameda Municipal Code inconsistent with this Ordinance, to the extent of such inconsistencies and no further, is hereby repealed or modified to the extent necessary to effectuate this Ordinance.

Section 5: CEQA DETERMINATION

This action is exempt from CEQA pursuant to CEQA Guidelines section 15061(b)(3) in that the standards set forth in the ordinance are more protective of the environment than the California Energy Code standards, and there is no possibility that the activity in question may have a significant effect on the environment. As a separate and independent basis, this action is exempt from CEQA pursuant to CEQA Guidelines section 15308 in that the standards set forth in the ordinance assure the maintenance, restoration, enhancement or protection of natural resources and the environment. In addition, CEQA Guidelines section 15183 (Projects Consistent with a Community Plan, General Plan, or Zoning) applies to the project in that the standards set forth in the Ordinance are consistent with the General Plan and the Climate Action and Resiliency Plan.

The foregoing determination is made by the City Council in its independent judgment.

Section 6: SEVERABILITY

If any provision of this Ordinance is held by a court of competent jurisdiction to be invalid, this invalidity shall not affect other provisions of this Ordinance that can be given effect without the invalid provision and therefore the provisions of this Ordinance are severable. The City Council declares that it would have enacted each section, subsection, paragraph, subparagraph and sentence notwithstanding the invalidity of any other section, subsection, paragraph, subparagraph or sentence.

Section 7: EFFECTIVE DATE

¹ <https://onesanfrancisco.org/sites/default/files/inline-files/Lifelines%20Restoration%20Performance%20Report%20Final-03-02-21.pdf>
Exhibit 2
Item 7- B, April 26, 2021
Planning Board Meeting

This Ordinance shall be in full force and effect from and after the expiration of thirty (30) days from the date this Ordinance and accompanying Resolution is filed with the California Energy Commission for approval pursuant to applicable law.

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