CONTRA COSTA COUNTY

FINDINGS IN SUPPORT OF CHANGES, ADDITIONS, AND DELETIONS TO CALIFORNIA ENERGY CODE TO REQUIRE CERTAIN NEWLY CONSTRUCTED BUILDINGS TO BE MORE ENERGY EFFICIENT

The California Building Standards Commission has adopted and published the 2022 Building Standards Code, which became effective on January 1, 2023. The 2022 Building Standards Code is composed of the 2022 California Building, Residential, Green Building Standards, Energy, Electrical, Plumbing, Mechanical, and Existing Building Codes. These codes are enforced in Contra Costa County by the Building Inspection Division of the Department of Conservation and Development.

Although these codes apply statewide, Health and Safety Code sections 17958.5 and 18941.5 authorize a local jurisdiction to modify or change these codes to establish more restrictive building standards if the jurisdiction finds that the modifications and changes are reasonably necessary because of local climatic, geological, or topographical conditions. Additionally, Public Resources Code section 25402.1(h)(2) further authorizes a local jurisdiction to modify or change the California Energy Code if the local jurisdiction finds that the proposed standards are cost-effective, and the California Energy Commission determines that the proposed standards will require the diminution of energy consumption levels permitted by the 2022 California Energy Code.

Ordinance No. 2024-17 amends the 2022 California Energy Code to increase energy efficiency standards for certain newly constructed residential buildings, hotels, offices, and retail buildings be constructed to be more energy efficient than the 2022 California Energy Code mandates.

Pursuant to Health and Safety Code section 17958.7, the Contra Costa County Board of Supervisors finds that the more restrictive standards contained in Ordinance No. 2024-17 are reasonably necessary because of the local climatic, geological, and topographic conditions that are described below.

I. Local Conditions

A. Climatic

1. Temperature

a) Conditions

Temperatures have been recorded as high as 114° F. Average summer highs are in the 75° to 90° range, with average maximums of 105° in some areas of unincorporated Contra Costa County.

b) Impact

Prolonged exposure to high temperatures can be detrimental to the health and safety of building occupants. Buildings that meet higher efficiency requirements have the ability to maintain indoor space conditioning for longer periods of time. During power outages, particularly outages that coincide with extreme temperatures, energy efficient buildings provide higher levels of health and safety to the occupants of the building.

2. Greenhouse Gas Emissions

a) Conditions

Energy use in buildings contributes significantly to greenhouse gas (GHG) emissions. Increased levels of GHGs in the atmosphere accelerate the rate of climate change, a phenomenon known as global warming. Scientists attribute the global warming trend observed since the mid-20th century to the human expansion of the "greenhouse effect."The greenhouse effect is caused by the warming that results when the atmosphere traps heat radiating from Earth toward space.[1] Residential and commercial buildings are responsible for roughly 25% of California's GHG emissions.[2] In buildings, the combustion of natural gas and petroleum products for heating and cooking needs emits carbon dioxide (CO2), methane (CH4), and nitrous oxide (N20). Emissions from natural gas consumption represent 78 percent of direct fossil fuel CO2 emissions from the residential and commercial sectors in 2022.[3]

In 2016, through Senate Bill 32, California set targets to reduce GHG emissions to be 40 percent below 1990 levels by 2030. Subsequently, the California Air Resources Board (CARB) released its 2022 Scoping Plan outlining a roadmap for California to achieve carbon neutrality by 2045 or earlier.[4] Contra Costa County is also taking steps to reduce GHG emissions. As part of the Envision Contra Costa 2040, the County is updating its Climate Action and Adaptation Plan to improve community resilience and establish GHG reduction targets consistent with the State targets. As part of this update, the County completed a local greenhouse gas emissions inventory.

b) Impact

Requiring more stringent building efficiency standards in new construction for the building types specified in this ordinance is consistent with the intent of State legislation and County requirements to aggressively implement energy policies designed to ensure success in meeting GHG emission reduction goals.

[1] NASA, The Causes of Climate Change, as of August 8, 2024, https://science.nasa.gov/climate-change/causes/

[2] California Air Resources Board, Building Decarbonization, as of August 8, 2024, https://ww2.arb.ca.gov/our-work/programs/building-decarbonization

[3] United States Environmental Protection Agency, Source of Greenhouse Gas Emissions, as of August 8, 2024, https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions#commercial-and-residential.

[4] California Air Resources Board (n 2)

B. Geological

1. Seismicity

a) Conditions

Contra Costa County is located in Seismic Design Categories D and E, which designates the County at very high risk for earthquakes. Buildings and other structures in these zones can experience major seismic damage. Contra Costa County is near numerous earthquake faults including the San Andreas Fault, and all or portions of the Hayward, Calaveras, Concord, Antioch, Mt. Diablo, and other lesser faults. A 4.1 earthquake with its epicenter in Concord occurred in 1958, and a 5.4 earthquake with its epicenter also in Concord occurred in 1955. The Concord and Antioch faults have a potential for a Richter 6 earthquake and the Hayward and Calaveras faults have the potential for a Richter 7 earthquake. Minor tremblers from seismic activity are not uncommon in the area. A study released in 2015 by the Working Group of California Earthquake Probabilities predicts that for the San Francisco region, the 30-year likelihood of one or more earthquake of 6.7 or larger magnitude is 72%. The purpose of this Working Group is to develop statewide, time-dependent Earthquake Rupture Forecasts for California that use best available science, and are endorsed by the United States Geological Survey, the Southern California Earthquake Center, and the California Geological Survey. Scientists, therefore, believe that an earthquake of a magnitude 6.7 or larger is now slightly more than twice as likely to occur as to not occur in, approximately, the next 30 years.

b) Impact

A major earthquake could cause major damage to electrical transmission facilities and gas distribution infrastructure which is likely to disrupt these services to buildings. “If ambient temperatures are extremely hot or cold during these outages, it can become a public health emergency. Efficient buildings retain their space conditioning (cooling and heating) longer during power outages, making building occupants more resilient.”[5] Increasing the level of energy efficiency in new construction for the building types specified in this ordinance will increase resilience during power outages by enabling buildings to maintain safe indoor conditions during power outages.

[5] Center for Climate And Energy Solutions, Resilience Strategies for Power Outages, https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions#commercial-and-residential

C. Topographic

1. Vegetation

a) Conditions

The wildland-urban interface exists throughout Contra Costa County, oftentimes abutting residential development and other critical infrastructure. Due to the presence of highly combustible dry grass, weeds, and brush in hilly and open space areas for 6-8 months of the year, these areas are susceptible to wildland fires which can threaten nearby structures and disrupt power delivery. Wildland fires also create thick layers of toxic smoke and particulate matter that can be harmful to communities exposed to it.

b) Impact

Energy efficient buildings, especially those with Distributed Energy Resources (DER) such as solar generation and battery storage, are more capable of maintaining indoor air quality and comfortable temperatures during power loss events caused by wildland fires and/or extreme heat. "Resilient solutions that incorporate back-up power with efficiency measures will deliver many more critical hours of safety (the duration a building can maintain livable conditions during an extreme weather event or wildfire)"[6] Requiring more stringent building efficiency standards by amending the building code will enhance Contra Costa County residents' resilience to wildland fires which have become endemic to the region.

II. Necessity of More Restrictive Standards

Due to the conditions described above, the Contra Costa County Board of Supervisors finds that there are local climatic, geological, and topographical conditions unique to Contra Costa County that require the imposition of building energy standards that are more stringent that the State's energy code for newly constructed residential buildings, detached accessory dwelling units, hotels, offices, and retail buildings as set forth in Ordinance No. 2024-17

III. California Energy Code

Pursuant to California Public Resources Code section 25402.1(h)(2), the Contra Costa County Board of Supervisors finds that the modifications made to the California Energy Code in this ordinance are cost-effective for newly constructed residential buildings, including detached accessory dwelling units located in climate zone 12, and all newly constructed hotels, offices and retail buildings. This finding of cost-effectiveness is based on the following cost-effectiveness studies prepared as part of the Statewide Reach Codes Program:

[6] Rocky Mountain Institute (RMI), Adapting to Fire: How Cities Can Enhance Resilience with Distributed Energy, as of August XX, 2024, https://rmi.org/adapting-to-fire-how-cities-can-enhance-resilience-with-distributed-energy/

- 2022 Cost-Effectiveness Study: Single Family New Construction
  Last modified May 30, 2024
- 2022 Cost-Effectiveness Study: Multifamily New Construction
  Last modified June 20, 2023
- 2022 Cost-Effectiveness Study: Nonresidential New Construction Reach Code
  Last modified March 24, 2023

Contra Costa County is located in climate zones 3 and 12. The cost-effectiveness studies conclude that specific modifications to the 2022 California Energy Code—including more stringent building energy efficiency requirements for newly constructed residential buildings, hotels, offices, and retail buildings— are cost-effective for climate zones 3 and 12. The Board of Supervisors also finds, pursuant to California Public Resources Code section 25402.1(h)(2), that the modifications made to the California Energy Code in this ordinance will require diminution of energy consumption levels compared to those permitted by the 2022 California Energy Code. These findings of cost-effectiveness and energy savings will be filed with the California Energy Commission before Ordinance No. 2024-17 takes effect.