REACH CODE NEWS BRIEF: JUNE 2021

CITY OF CHULA VISTA: ADVANCING SUSTAINABILITY GOALS IN EXISTING BUILDINGS



The City of Chula Vista is located in one of the richest cultural, economic and environmentally diverse zones in the United States. The second-largest City in San Diego County with a population of 268,000, Chula Vista offers more than 52 square miles of coastal landscape, canyons, rolling hills, mountains, miles of trails and is home to one of two U.S. Olympic training centers. Chula Vista is also a leader in conservation and renewable energy, having adopted its first Climate Action Plan (CAP) in 2000.

Exploring Reach Code Options for Existing Buildings

When the City adopted its most recent CAP in 2017, incorporating a range of recommendations from the community Climate Change Working Group (CCWG), it included twelve climate protection measures, including requiring energy-savings retrofits in existing buildings.

The City had already implemented a range of strategies for new construction and recognized the significant impact possible with extending energy-efficiency requirements to existing buildings. In particular, staff were interested in tackling retrofits for homes built before 2006, which make up approximately 86% of residential structures in the City.

“Community inputs during the process were very important, and revealed a need for a high degree of flexibility and options for homeowners from all socio-economic levels,” observed Cory Downs, Conservation Specialist with the City of Chula Vista. As a result, staff developed a highly flexible measure that requires homes built before 2006 make a number of energy efficiency upgrades when the owner is also pursuing an addition or remodeling of the home. Homeowners may select from a range of options, depending on the vintage and building type. Option packages include:

- Attic insulation
- Air Sealing
- Cool roof
- Duct sealing
- LED lighting
- Water heating package
- Windows
- Water heater replacement
- Air conditioner replacement

For instance, homes and condominiums in Climate Zone 10 must install four measures. In milder CZ 7, homes and condominiums built before 1978 must install three measures. Homes built between 1978-1991 would select two ECMs and condos built during these years would select three. Homes and condos built between 1992-2005 need only choose two ECMs.

Several exemptions are available, including homes where similar measures have already been completed, homes that have received high marks from a third-party energy-efficiency audit, and low-income homeowners.

Implementing the Measure

The Chula Vista City Council adopted the ordinance in November 2020, and the Energy Commission approved it during its January 2021 monthly business meeting. The city anticipates enforcement of the new measures will begin in early 2022.

City staff have already begun implementing education and outreach activities for staff, including creating checklists and guides for homeowners and contractors. “We recognize the flexibility of this approach makes the application process more complex,” notes Dennis Gakunga, Chief Sustainability Officer, “but our intent was to make this as inclusive and flexible as possible for all applicants.”

Upcoming Webinar

The Chula Vista experience will be featured in the upcoming July 1 webinar offered by the Local Government Sustainable Energy Coalition. Visit Chula Vista's website for more ordinance information or Chula Vista's Building Ordinances - Bringing Energy Savings to Existing Buildings to register for the webinar.

UPCOMING EVENTS

July

July: Dates TBD: Reach Codes Program Webinars

1. Battery Storage for Single Family Homes Cost-Effectiveness Study

2. Cost-Effectiveness Explorer Updates

July 1: Local Government Sustainable Energy Coalition webinar: Chula Vista's Building Ordinances - Bringing Energy Savings to Existing Buildings

July 7: BayREN Training: HERS Registry

Week of July 12-16: California Adaptation Forum Track Kick-off Webinars

July 15: Energy Commission Business Meeting

Week of July 26-30: California Adaptation Forum Round One Track Workshops





Be sure to follow us on Twitter for the latest news and information!

Just published!

The proposal for Voluntary Energy Efficiency Requirements for 2022 Title 24, Part 11 (CALGreen) is now available from the CASE team. Read or download the CASE Report here.

Codes and Standards Enhancement (CASE) Initiative

Voluntary Energy Efficiency Requirements for Title 24, Part 11 (CALGreen)



Title 24, Part 11 (CALGreen) Recommendations June 2021

Prepared by Energy Solutions, Frontier Energy, and TRC

CALIFORNIA ENERGY CODES & STANDARDS
A STATEWIDE UTILITY PROGRAM

This report was prepared by the California Statewide Codes and Standards Enhancement (CASE) Program that is funded, in part, by California utility customers under the auspices of the California Public Utilities Commission.

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NEW THIS MONTH!



Q&A WITH LAWRENCE GARBER: A LOOK AT LOCAL GOVERNMENT PERSPECTIVES ON REACH CODE ADOPTION AND IMPLEMENTATION

Lawrence Garber is an Associate at the Building Decarbonization Coalition (BDC). Prior to joining BDC, he worked in the Sustainability Program at the Association of Monterey Bay Area Governments (AMBAG). He began his career as an educator, serving as an environmental science educator in Yosemite National Park, a high school teacher in Austin, Texas, and a Peace Corps Volunteer English teacher in Sierra Leone and Namibia. He has a BS in Environmental Studies and Spanish from the University of Michigan and an MA in International Environmental Policy from the Middlebury Institute of International Studies at Monterey.

Q: Tell us a little background about this project, Lawrence.

A: As of today 46 jurisdictions have adopted a reach code or local ordinance the encourages or requires building electrification. We wanted to learn more so a survey was designed to gather information from the local government perspective on the reach code adoption and implementation process. While there's been a lot of activity statewide over the past few years with development and adoption, there's also been a gap in understanding how the process has been for these stakeholders. This was actually part of my master's capstone project as well; I received my Master's in International Environmental Policy from the Middlebury Institute of International Studies in Monterey in May 2021.

Q: How did you conduct the research?

A: We developed a written survey that was sent out in late March 2021 to more than 50 jurisdictions across the state. In most cases, we received written information from respondents but did do some individual follow up with specific jurisdictions. We collaborated with Acterra, a nonprofit in the Bay Area that focuses on environmental education and action. Sixteen jurisdictions replied to the survey and we were able to gather some valuable initial insights into the process.

Q: What were some of the most important takeaways, Lawrence?

A: It was interesting to note, first of all, all-electric measures were the most popular by far, accounting for more than half. Electric-preferred measures were also quite popular, and natural gas moratoriums were also important approaches.

We learned that most of our respondents found the technical aspects—identifying the best measure options and undertaking the cost-effectiveness research—to be the most challenging, although some of the relational aspects with local stakeholder groups also proved challenging.

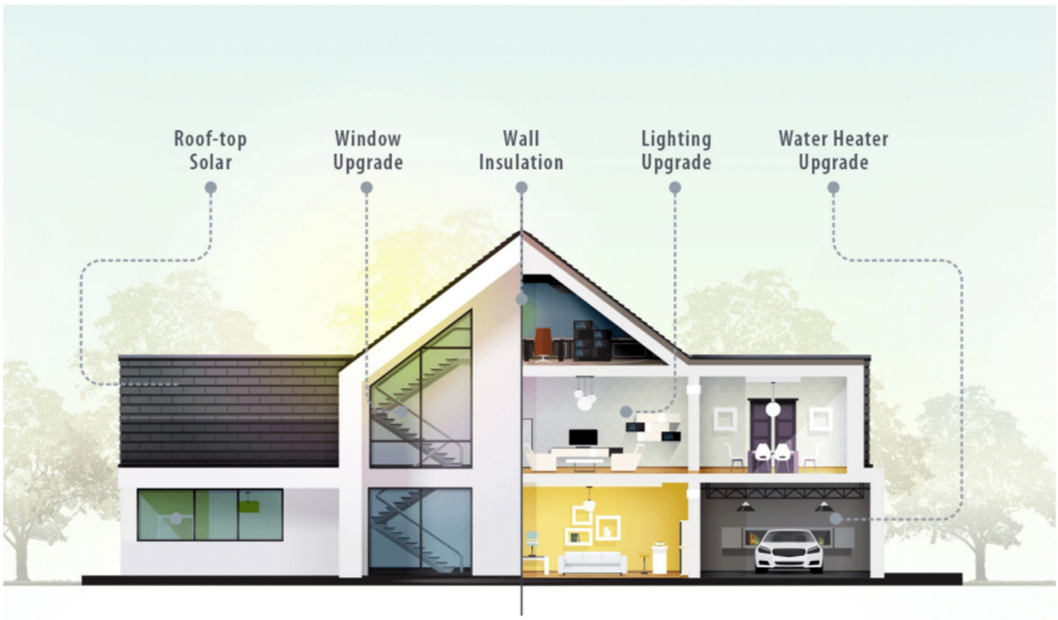
Most of the jurisdictions that responded indicated they would be very likely to pursue similar reach code measures during the 2022 code cycle.

Jurisdictions reported barriers to tracking mixed fuel versus all-electric projects. As many of these codes are in the early days of implementation, internal tracking systems are not fully developed in some cases. We found there was an opportunity for cities to learn best practices from one another to overcome this barrier.

Q: What are the next steps with this research?

A: Many of the respondents expressed an interest in continuing this type of survey, perhaps on an annual basis. We would also welcome participation in this survey on a continuing basis, either through the written survey, still available in Google forms, or on a one-to-one basis. Interested individuals are free to contact me at lawrence@buildingdecarb.org. My presentation is also available here.

XeroHome™



XeroHome™ is a web based platform that uses predictive modeling and data science to deliver customized home energy insights at scale.

NEW BUILDING ENERGY SIMULATION TOOL FOR RESIDENTIAL RETROFITS MAY SIMPLIFY REACH CODE DEVELOPMENT

With single-family residential buildings representing more than 60% of total U.S. building stock and 47% of energy consumption (RECS 2015, CBECS 2012), more and more local jurisdictions are evaluating how to incorporate energy efficiency goals for existing residential buildings into their Climate Action Plans and reach codes. As the

City of Chula Vista story in this issue illustrates, there are many variables to consider, and one significant challenge is how to quantify the expected benefit from specific measures.

A new building energy simulation tool called XeroHome,™ developed by Vistar Energy, offers promising capabilities. XeroHome was developed under a Small Business Innovation Research grant from the U.S. Department of Energy (DOE-SBIR). An energy modeling platform capable of modeling single-family homes at scale, XeroHome analyzes multiple individual homes while capturing each home's size, vintage, permit history, geometry, site orientation, fuel type and utility rates. This enables the analysis to capture the diverse range of home energy performance and savings potential not possible with a single home prototype approach. The tool can develop an 'opportunity map' for an entire region, with models that predict energy and carbon savings from specific energy efficiency measures or combinations of measures.

"Using machine learning and surrogate modeling, the tool is able to significantly speed the process of running multiple models," notes Mudit Saxena, CEO of XeroHome. "We see this tool as a promising one for cities who are contemplating specific reach code measures for existing homes but lack the resources to conduct this kind of research themselves."

The company recently conducted feasibility studies for eight cities, each over 50,000 residents, located across the state. The project, funded by Southern California Edison's (SCE) Codes and Standards Program, focused on two specific measures: replacing a gas water heater with an electric heat pump water heater and rooftop solar. In many cases, requiring the water heater replacement alone proved not to be cost-effective in most jurisdictions. However, by bundling the two measures, the modeling showed cost-effectiveness for seven of the eight jurisdictions studied. This bundling approach can be a way to promote electrification in regions where utility rates and upgrade economics make it particularly challenging for homeowners. The modeling methodology was conservative, for example, the modeling assumed full cost of replacement and did not include current utility rebates except the solar federal tax credit.

"With this type of analysis," suggests Peter May-Ostendorp, CTO of XeroHome, "local jurisdictions can fine-tune specific measures and identify the optimal bundles for their communities, taking into account climate, utility rates, home vintages, an entire range of variables."

On the individual homeowner level, the tool provides homeowners with an energy upgrade plan over a simple website, uniquely customized for their home with clear recommendations for cost-effective, clean energy options. Homeowners are supported

all the way from decision making to finding a contractor in their region to installing the upgrade, all from within the XeroHome tool interface. SCE's Reach Code and Emerging Products and Technology teams are partnering with the City of Santa Monica to assess the accuracy of the XeroHome tool by comparing on-site energy audit results with the XeroHome energy modeling outputs. Additionally, this project also analyzes the effectiveness of the tool in engaging homeowners to install energy efficiency equipment. For more information on this project, email Christopher Kuch.

For general information, visit XeroHome.



This program is funded by California utility customers and administered by Pacific Gas and Electric Company, San Diego Gas & Electric Company (SDG&E®), and Southern California Edison Company under the auspices of the California Public Utilities Commission and in support of the California Energy Commission.

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