



CITY OF HEALDSBURG CITY COUNCIL AGENDA STAFF REPORT

MEETING DATE: September 19, 2022

SUBJECT: 2nd reading of the Healdsburg 2022 Electrification Reach Code

PREPARED BY: Terra Sampson, Utility Conservation Analyst

STRATEGIC INITIATIVE(S):

Pursue Initiatives that Promote Environmental Stewardship
Maintain and Enhance Public Health and Safety

RECOMMENDED ACTION(S):

Pass an Ordinance of the City Council of the City of Healdsburg amending section 15.04.080 of the Healdsburg Municipal Code.

COMMUNITY ENGAGEMENT/OUTREACH:

During the development and adoption of the City's current reach code, the City held several public meetings that included public comment. The City Council also discussed the reach code, and the public was permitted to comment, during the February 7, 2022 Council meeting. The City posted notice of the September 6th public hearing and the September 19th meeting, the public provided comment during the September 6th hearing and will be permitted to comment during the September 19th meeting, and the City updated the City's website for this item.

BACKGROUND:

Local governments can adopt optional local building code amendments, known as "reach codes", that exceed state code standards. Cities and Counties can adopt amendments to the Energy Code (Title 24, Part 6) and California Green Building Standards CALGreen (Title 24, Part 11) codes to meet local environmental goals.

On December 16, 2019, the City Council of the City of Healdsburg passed Ordinance No. 1196 to adopt a local reach code. The City's existing reach code will expire with the current building code cycle on December 31, 2022. To continue to reduce greenhouse gas (GHG) emissions associated with new construction, the City now needs to adopt a replacement reach code that will go into effect on January 1, 2023, in alignment with the new building code cycle.

At the September 6th Council meeting, the City Council adopted, for first reading only, the proposed revised reach code.

GHG Emissions

In the upcoming code cycle, the City has forecasted the construction of approximately 360 single family and multi-family dwelling units, a combination of market-rate and affordable housing. Below, the table quantifies the estimated avoided Greenhouse Gases (“GHG”) emissions of a 2022 code compliant home that is all-electric.

Annual GHG Emissions Avoided per home in metric tons of carbon dioxide equivalent

All-Electric Building	Annual GHG Emissions Avoided per dwelling (MTCO_{2e})	Annual GHG Emissions Avoided for all dwellings (MTCO_{2e})
90 Single Family Dwellings	0.723	65.07
270 Multi-Family Dwellings	0.374*	100.99
		166.06

*According to the U.S. Energy Information Administration 2015 Residential Energy Consumption Survey, apartments use 52% of the energy used in a single-family home. This factor is applied to the single-family savings estimate in lieu of the Statewide Reach Codes Program analysis, which is not available for multi-family construction at this time.

If all new homes in 2023-2025 are built as all-electric, it would avoid 166 MTCO_{2e} of emissions annually. For context, the floating solar project saved 1,249 MTCO_{2e} in 2021, the Recology’s electric garbage truck is estimated to avoid 65 MTCO_{2e} per year, energy efficiency programs saved 37 MTCO_{2e} in 2021, and the Sonoma County Transit electric bus that services Healdsburg is estimated to avoid 30 MTCO_{2e} per year.

City Council Direction

Staff presented reach code options at the February 7, 2022 City Council meeting. At the meeting, City Council directed staff to develop an ordinance to continue the building electrification requirements for electric space and water heating but allowing natural gas for cooking and decorative fireplaces for low rise residential and non-residential newly constructed buildings. Additionally, City Council directed staff to add pool and spa systems in the building electrification requirements, which are exempt in the City’s current reach code. The table below shows the estimated GHG emissions from the exceptions per dwelling, if all new dwellings were to use the exception, and if a standard percentage of dwellings used the exception (based on historical numbers for California and the Pacific West). The standard percentage of homes that would use the exceptions significantly reduces the impact of emissions maintained in new residential construction; however, the numbers below are estimates and more or fewer homes could opt to use the exception resulting in changes to the net GHG savings.

Annual GHG Emissions Maintained per home in metric tons of carbon dioxide equivalent

Exception Considered	Annual GHG Emissions Maintained per dwelling (MTCO_{2e})	Annual GHG Emissions Maintained for ALL 360 dwelling (MTCO_{2e})	Annual GHG Emissions Maintained for STANDARD % of dwelling (MTCO_{2e})
Natural Gas Cooking Appliances	.14	52	9*
Decorative Fireplaces	.11	41	1**
Pool and Spa*** Heating	3.98	N/A	13

*Assumes 73% of single-family dwellings use the exception, according to the U.S. Energy Information Administration Residential Energy Consumption Survey on fuels used for selected end uses in 2020 in California. Assumes no affordable multi-family dwellings use the exception. Affordable housing in Healdsburg is expected to be all-electric to take advantage of cost savings from not installing natural gas infrastructure and of health and safety benefits from eliminating combustion appliances.

**Assumes 7% of single-family dwellings use the exception, according to the U.S. Energy Information Administration Residential Energy Consumption Survey on natural gas fireplaces in 2020 in the Pacific West. Assumes no affordable multi-family buildings use the exception.

***Removed as an exception in the 2022 Reach Code. Assumes 4% of single-family dwellings use the exception, according to the U.S. Energy Information Administration Residential Energy Consumption Survey on heated swimming pools in 2020 in the Pacific West. Assumes no affordable multi-family buildings use the exception. Not applicable to all homes or an average home due to very high energy consuming activity.

DISCUSSION/ANALYSIS:

The City Council adopted the proposed ordinance, for first reading only, at the September 6, 2022 Council meeting. The proposed ordinance requires electric heating and water heating appliances in newly constructed buildings but allows for gas cooking and decorative fireplaces. Space heating and water heating accounts for approximately two-thirds of average residential energy use. Requiring these uses to be electric results in a measurable reduction of overall energy consumption and GHG emissions. A single family all-electric code compliant home is estimated to save 12 MMBTU of energy annually as compared to a standard mixed fuel code compliant home.

To meet increased demands for both transportation electrification and building electrification, Healdsburg’s electric utility is developing and contracting for new renewable and low-carbon energy sources. Specific to building electrification, the added heating loads are likely to occur during the winter and night-time hours. These periods typical have large energy supplies and can accept the new energy demands of space heating. In any case, efficient electrification (transition

by using high-efficiency appliances) should be incentivized to assure the best use of clean energy sources.

Proposed Reach Code

The proposed reach code applies to newly constructed buildings and buildings determined to be substantially remodeled. Based on City Council direction on February 7, 2022, the reach code ordinance for the City of Healdsburg would have the following standards and requirements:

Summary of proposed Reach Code requirements and standards	
Building Type	Requirements and Standards
New Residential Buildings (single family and multi-family)	<p>Requires all-electric building for: space heating, water heating, clothes drying, pool and spa heating equipment</p> <p><i>Exceptions:</i> Natural gas can be used for cooking and decorative direct-vent sealed-combustion type fireplaces Attached accessory dwelling units are exempt, if using the existing primary dwelling’s mixed fuel system Projects required to correct existing health, sanitary or safety code violations</p> <p><i>Mitigation Measure:</i> Pre-wiring for electric appliances is required where natural gas appliances are used</p>
New Non-Residential Buildings	<p>Requires all-electric building for: space heating, water heating, clothes drying, pool and spa heating equipment</p> <p><i>Exceptions:</i> Natural gas can be used for cooking and decorative direct-vent sealed-combustion type fireplaces Projects required to correct existing health, sanitary or safety code violations Essential service and public facilities (i.e., fire or police stations) may apply for exemption Non-residential buildings may apply for exemptions under certain conditions</p> <p><i>Mitigation Measure:</i> For all exemptions, natural gas appliance locations must be electrically pre-wired for future appliance installation when feasible</p>

The California Energy Commission (CEC) has concluded that the all-electric requirement does not constitute an energy efficiency or conservation standard and is outside their scope, and that the all-electric requirement amendments be made in Part 11 of Title 24, called the California Green Building Standards Code (CALGreen). The CEC reviewed the draft ordinance on August 23, 2022 and determined that it does not fall within their jurisdiction. The proposed amendments

outlined above will be applied to the 2022 CALGreen. Buildings will still be required to meet the standards set forth in all parts of the 2022 California Building Standards Code as adopted by the City of Healdsburg, including the California Energy Code.

Cost Effectiveness

The California Energy Codes & Standards available studies present the research and cost effectiveness analysis of various building prototypes with different reach code options. However, cost effectiveness is not a requirement for amendments to CALGreen.

In 2019, the City had the cost-effectiveness analyses performed for Healdsburg’s electric rates, which differ from the investor-owned utility rates in California. The 2019 analyses found that it was cost-effective to construct all-electric buildings compared to the 2019 Standards Alternative Calculation Method (ACM) baseline.

2022 state-wide results are currently available for single-family homes and are shown below. All-electric buildings are cost-effective under the 2022 code in part due to 1) cost savings experienced upfront in the construction phase by avoiding the cost to install natural gas infrastructure, 2) the 2022 code prescriptively required heat pumps for space heating and water heating, and 3) the 2022 code requirement for pre-wiring for all-electric appliances in residential mixed-fuel buildings.

PER-HOME IMPACT							
Fuel Type	Compliance Margin	Incremental Cost	Annual Bill Savings (on-bill)	Emissions Savings (MTCO _{2e} /year)	Lifecycle Savings (on-bill)	Electricity Savings (kWh/year)	Gas Savings (therms/year)
All Electric	0.0	-\$6,929	-\$767	0.723	-\$14,029	-3,709	247

∨ FUEL CHOICE INCENTIVE

Cost of Choosing All-Electric Per Home Estimate

\$6,929 ↓ lower Under 2022 Code	\$6,929 ↓ lower With your policy
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All-Electric Construction Assumptions – 2023–2025

<input type="text" value="25"/> % Under 2022 Code	<input type="text" value="100"/> % With your policy
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Construction cost for builders to build an all electric home instead of a mixed fuel home. Guesstimate for the percentage of homes that builders will choose to build all-electric.
 ***The results above are based on investor-owned utility rates, which are higher than the Healdsburg electric rates. The results are also based on state-wide electric emissions, which Healdsburg electric emission rate is lower than the state average.

The City had the cost-effectiveness analyses for the 2022 code modified for Healdsburg’s electric rates. All-electric code compliant new construction was found to be feasible and cost effective for the single-family prototypes.

Increased energy efficiency, high efficiency heat pump water heaters, and solar also increase cost-effectiveness, particularly for on-bill savings. New buildings are encouraged, but not required, to select higher efficiency appliances when possible.

Next Steps

If adopted by City Council on September 6 and September 19, staff will submit the proposed reach code to the Buildings Standards Commission (BSC). This Ordinance shall become effective upon the date the California Building Standards Commission (CBSC) accepts the

ordinance for filing, but in no event before January 1, 2023.

ENVIRONMENTAL STEWARDSHIP:

Healdsburg's two largest producers of GHG emissions are the transportation sector and the building sector. The current reach code has reduced GHG emissions associated with new buildings and substantially remodeled buildings. Continuation of a policy to require all-electric buildings will support the Council's goals to reduce GHG emissions and stem climate change.

ALTERNATIVES:

The City Council could choose to modify various aspects of the staff recommendations to accommodate a more precise application. This could include an all-electric reach code with different exemptions.

No Action: The City Council could direct staff to not pursue a replacement for the existing reach code and rely on state regulations for the control of GHG emissions. As the current and proposed building codes do not entirely require building electrification, this alternative would not achieve the Council's goals of reducing GHG emissions. The City Council could therefore provide further direction to staff on how to achieve an equivalent GHG reduction and meet the Council's climate goals.

FISCAL IMPACT:

Staff time to develop this program is within existing approved budgets. Staff will require support from qualified consultants experienced in the implementation and enforcement of building electrification policies over the next code cycle. Costs to implement and enforce the requirement are not expected to exceed \$30,000 and are planned to be funded with proceeds from the sale of Cap-and-Trade greenhouse gas allowances over the three-year code cycle.

ENVIRONMENTAL ANALYSIS:

The City Council finds, pursuant to the California Environmental Quality Act ("CEQA") Guidelines Section 15061(b)(3), that this ordinance is exempt from the requirements of CEQA on the grounds that these standards are more stringent than the State green building standards, there are no reasonably foreseeable adverse impacts and there is no possibility that the activity in question may have a significant effect on the environment.

This ordinance is also exempt under CEQA Guidelines Sections 15307 and 15308 on the grounds that: a) the City, as a regulatory agency, is authorized to amend the Energy Code and Green Building Standards Code; b) this ordinance assures the maintenance and protection of the environment by amending the Green Building Standards Code to impose more stringent all-electric energy requirements for future building; and c) the Ordinance will institute regulatory requirements intended to protect the environment and natural resources, as the Ordinance will require the installation of less natural gas infrastructure and reduce the amount of GHG gas emissions in the City that are produced from buildings, and reduce the risk of catastrophic infrastructure failure, including explosions and fires caused by breaks and leaks in the natural gas distribution system as a result of upset conditions due to deferred maintenance or following an earthquake.

ATTACHMENT(S):

Ordinance

2022 Healdsburg Residential Cost Effectiveness Report