



DATE: January 14, 2019

TO: Council Sustainability Committee

FROM: Director of Utilities & Environmental Services

SUBJECT: Natural Gas Use in New Construction

RECOMMENDATION

That the Committee reviews this report and directs staff to work with BayREN in its efforts to coordinate development and adoption of a reach code for the 2019 Title 24 Code.

SUMMARY

To meet long term goals for reducing greenhouse gas (GHG) emissions, our use of natural gas must be curtailed significantly. This report provides an update on the effort to address natural gas appliances and infrastructure in new construction. Every three years, the California Building Code undergoes a full update and the 2019 Code will be in effect on January 1, 2020. Local jurisdictions can implement codes that are more stringent than the State Code. If local codes are adopted and approved in 2019, they can also be effective January 1, 2020.

On July 16, 2018, the Committee considered a report titled *Building Electrification & Reducing Natural Gas Use*¹. The Committee recommended supporting and encouraging East Bay Community Energy (EBCE) to address electrification of existing buildings. The Committee also expressed support for phasing out the use of natural gas in new construction and, eventually, no longer permitting new natural gas lines for new construction. The Committee noted that heat pump water heaters in new construction may be a good place to start and that any new regulations should come with sufficient advance notice to developers and builders.

BACKGROUND

The California Building Standards Code is updated by the California Building Standards Commission (CBSC) every three years. The Code, Title 24 of the California Code of Regulations, includes 12 parts and Part 6 is the California Energy Code, which is also approved by the California Energy Commission.

¹ Report is available at <https://hayward.legistar.com/LegislationDetail.aspx?ID=3551018&GUID=718DCC1C-13F6-41D0-8833-C72B0B86DCE5&Options=&Search=>

Local governments typically adopt the California Building Standards Code by local ordinance. However, if a local government does not adopt the State Code by local ordinance, the State Code becomes the default. State law allows for local amendments to the State Code and are subject to State approval. Local codes must be adopted for each new edition of the State Code. According to the CBSC, for local amendments that are related to energy conservation, “local governments must apply to the California Energy Commission (CEC) for approval, documenting the supporting analysis on how the local government has determined that the proposed local standard will save more energy than the current provisions in Part 6, Title 24, and the local government's determination that the local standards are cost-effective.”²

DISCUSSION

The 2019 California Building Standards Code will be effective on January 1, 2020. Key changes to Part 6 in the 2019 Code include:

- New requirements for installation of solar photovoltaics (PV) for newly constructed low-rise residential buildings
- Updated ventilation and Indoor Air Quality (IAQ) requirements
- Increased insulation requirements

When the California Public Utilities Commission (CPUC) adopted the California Long-Term Energy Efficiency Strategic Plan in 2007, it established goals to have all residential construction in California be zero net energy by 2020, and all new commercial construction in California be zero net energy by 2030. Buildings compliant with the 2019 Code will be significantly more efficient than buildings built using the 2016 Code and will require solar PV in new residential construction. However, new homes built to meet the minimum requirements of the 2019 Code will not be ZNE. To enable them to fully benefit from the Public Electric Utilities Net Energy Metering tariffs, residential construction will be required to have enough PV to offset 80% of the building's electrical load, and natural gas appliances will still be permitted. The next step toward achieving ZNE will be to eliminate the use of natural gas.

The following table provided by the CEC shows that an all-electric home is estimated to emit significantly fewer GHG emissions compared to a mixed fuel building that uses both electricity and natural gas. The table is for a hypothetical 2,700-square-foot home in climate zone 12, which is located in the Central Valley. The first two rows assume no solar photovoltaic (PV) system and the remaining rows assume either a 3.1-kilowatt PV system or a 6-kilowatt PV system.

² https://www.documents.dgs.ca.gov/bsc/Title_24/Guide_for_Local_Amendments_of_Building_Standards_2016-opt.pdf



Electrified Buildings Have Lowest CO2 Emission Levels

2700 sf prototype, CZ12

CO2 Impact of Housing Choices		Metric Tons of CO2 Emitted/yr
Mixed Fuel	2000 Compliant Building, No PV	6.5
Mixed Fuel	2016 Compliant Building, No PV	3.26
Mixed Fuel	2019 Standard Design, with 3.1 kW PV	2.29
All-Elect	2019, 3.1 kW PV	1.12
All-Elect	2019, 6 kW PV	0.46

Some local jurisdictions are looking to advance building electrification by adopting energy efficiency standards that are more stringent than the statewide standards. Such regulations are commonly called “reach codes” and require approval by the CEC. A local government’s application to the CEC must include documentation showing that the local standards will save more energy than the current statewide standards and that the local standards are cost-effective. A reach code must be updated and adopted for each cycle of the State Code (every three years).

Hayward had a reach code, a green building ordinance, in 2010 through 2013. The ordinance was rescinded when the State Code became more stringent in January 2014. A brief history of Hayward’s and the State’s green building codes is provided in Attachment II.

Energy Code experts caution that local and state codes that prohibit the use of natural gas could conflict with federal appliance efficiency standards and may not be legal. In other words, State and local governments may not “preempt” federal appliance standards, including those for space heating water heating. Several jurisdictions in California are considering local reach codes that would not prohibit the use of natural gas but would encourage or incentivize all-electric construction.

The Bay Area Regional Energy Network (BayREN) is helping to coordinate the many local governments throughout California that are interested in adopting reach codes for the 2019 Code. BayREN and the California Statewide Codes & Standards Program are preparing cost-effectiveness studies (one for low rise residential and one for commercial & multifamily) for every climate zone in California. The studies will evaluate the cost-effectiveness of a variety of energy efficiency, electric appliance, PV, and battery storage alternatives. Public drafts of the studies are expected to be available by the end of January 2019.

In order to adopt a reach code that will be effective on January 1, 2020, the following timeline is recommended by BayREN:

February	Acquire cost-effectiveness study
March – April	Conduct stakeholder outreach & refine scope of proposed local codes
May – July	Prepare ordinance and staff report
September	Introduce Ordinance
September	Adopt Ordinance
October – December	Obtain CEC Approval (must submit application by 9/30/2019)
December	File with CBSC and prepare to implement

BayREN has noted that it will be easier on the development community if local code requirements are consistent throughout the region. Staff intends to coordinate with other jurisdictions in the East Bay and beyond to develop potential requirements and engage with stakeholders.

ECONOMIC IMPACT

A reach code may only be adopted if it is determined that the proposed requirements are cost-effective. Cost-effectiveness will be measured considering lifecycle costs using a 30-year timeframe. The CEC requires that the cost-effectiveness analysis incorporate the time-dependent valuation (TDV) of energy so that the costs for the building owner/manager can be accurately calculated. Before a reach code is adopted in Hayward, the required analysis must show that the code would provide economic benefits to the local community.

FISCAL IMPACT

Staff's participation in the regional effort to develop a reach code is not impacting the City's General Fund. Before a reach code is adopted, staff will evaluate the potential impacts that implementation would have on the General Fund.

STRATEGIC INITIATIVES

This agenda item does not directly relate to one of Council's three Strategic Initiatives.

SUSTAINABILITY FEATURES

Meeting the City's long-term GHG reduction goal of 82.5% by 2050 will require that the use of natural gas be significantly curtailed throughout the community. Eliminating the use of natural gas in new construction would be a step toward meeting this goal. Furthermore, a reach code that encourages all-electric construction is consistent with the following General Plan policy:

Natural Resources Policy 2.6: Greenhouse Gas Reduction in New Development

The City shall reduce potential greenhouse gas emissions by discouraging new development that is primarily dependent on the private automobile; promoting infill development and/or new development that is compact, mixed use, pedestrian friendly, and transit oriented; promoting energy-efficient building design and site planning; and improving the regional jobs/housing balance ratio.

NEXT STEPS

Upon on direction from the Committee, staff may return to the Committee to present the draft cost-effectiveness studies and to determine next steps.

Prepared by: Erik Pearson, Environmental Services Manager

Recommended by: Alex Ameri, Director of Utilities & Environmental Services

Approved by:

A handwritten signature in black ink, appearing to read 'K. McAadoo', is written over a horizontal line.

Kelly McAadoo, City Manager