



CITY OF HAYWARD

Hayward City Hall
777 B Street
Hayward, CA 94541
www.Hayward-CA.gov

File #: ACT 19-093

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. 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.

ATTACHMENTS

Attachment I Staff Report
Attachment II History of Green Building Code



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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 'Kelly McAdoo', written in a cursive style.

Kelly McAdoo, City Manager

History of Green Building Code 2009 - 2017

December 15, 2009 – Council adopted a Green Building Ordinance¹ that took effect in January 2010. The ordinance required new residential projects to be GreenPoint Rated and score at least 50 points on the GreenPoint Rated checklist. In addition, projects were required to exceed energy efficiency standards by at least 15 percent.

Non-residential projects (were required to incorporate energy efficiency in one of three ways:

1. the lighting load for fixtures shall be reduced by at least 15 percent below new State energy efficiency standards;
2. 15 percent of lighting loads of such fixtures shall be provided by a renewable energy source; or
3. the project must show compliance for overall energy budget at 5 percent below the new State energy efficiency standards.

Also, for projects with new bathrooms or new water closets or urinals, indoor water use must be reduced by 20 percent below baseline per the 2007 California Plumbing Code, for each fixture.

April 3, 2013 – The Council Sustainability Committee² considered staff's recommendation to utilize the State Building Code to comply with Hayward's Climate Action Plan, Strategies 4 and 5 Related to New Development. It was recommended by the Committee to have a requirement for larger developers to offer solar as an upgrade option to homebuyers

December 17, 2013 – Council repealed Hayward's Green Building Ordinance³ because the 2013 California Green Building Code, which took effect on January 1, 2014, surpassed Hayward's ordinance. The 2013 Code increased energy efficiency requirements for residential projects by approximately 10% and for commercial projects by approximately 15%.

¹ Ordinance available at <http://citydocuments.hayward-ca.gov/weblink/0/doc/139715/Page1.aspx>

The report introducing the ordinance was presented on November 3, 2009 and is available at:

<http://citydocuments.hayward-ca.gov/weblink/0/doc/139648/Page1.aspx>

² <https://hayward.legistar.com/MeetingDetail.aspx?ID=505640&GUID=5E1D09C9-4640-42C3-87F3-7FD96ABA342D&Options=&Search=>

³ See Item 8 in the packet available at <https://hayward.legistar.com/MeetingDetail.aspx?ID=454227&GUID=89699A61-C46D-4BB8-A1C7-1828B7AFA1CE&Options=&Search=>

The report introducing the ordinance was presented on December 10, 2013 and is available at:

<https://hayward.legistar.com/MeetingDetail.aspx?ID=454225&GUID=59B62B6B-392C-4A2B-B699-54D63DED2939&Options=&Search=>

November 14, 2016 – The Council Sustainability Committee received a summary of the green building and energy efficiency aspects of the new State Code⁴. The 2016 Code included increased and new requirements for wall, attic, and duct insulation; water heating efficiency; lighting; and “solar ready” roof design.

December 13, 2016 – Council adopted⁵ the current state code, which took effect on January 1, 2017.

⁴ <https://hayward.legistar.com/LegislationDetail.aspx?ID=2881989&GUID=5240EB6B-AAAD-44BA-8EAE-EE4FAE1BA421&Options=&Search=>

⁵ See ordinance available at: <https://hayward.legistar.com/LegislationDetail.aspx?ID=2904769&GUID=64A5FA57-6CE8-466A-9CE7-2E7E9682EA7E&Options=&Search=>

The report introducing the ordinance was presented on December 6, 2016 and is available at: <https://hayward.legistar.com/LegislationDetail.aspx?ID=2898749&GUID=47C68937-A241-4C64-819F-523B223447AA&Options=&Search=>