



[Commission Name]

CONSENT CALENDAR
November 1, 2016

To: Honorable Mayor and Members of the City Council
 From: Community Environmental Advisory Commission (CEAC)
 Submitted by: Ben Gould, Chairperson, CEAC
 Subject: Phasing Out Natural Gas for Heating and Cooking

RECOMMENDATION

Direct the Community Environmental Advisory Commission (CEAC) and the Energy Commission (EC) to develop and evaluate a proposal for requiring installations of new cooking, water heating, and/or building heating systems to use technologies which do not burn natural gas. The proposal should consider an educational component, navigating Title 24 requirements, mitigating increased costs for low-income households, and other challenges with the transition.

FISCAL IMPACTS OF RECOMMENDATION

Some staff time to provide input to commissions on proposal and for educational outreach.

CURRENT SITUATION AND ITS EFFECTS

In Berkeley, natural gas combustion for residential and commercial use (primarily heating, water heating, and cooking) is responsible for 36% of Berkeley's GHG emissions (as of 2005)¹. To achieve emissions reductions goals, emissions from natural gas must be reduced. However, there is no current plan to do so.

The State of California also has no current proposals to address local emissions from natural gas. The State is currently preparing to implement zero net energy requirements for new buildings (residential by 2020, commercial by 2030), but as currently written, net energy is measured in units of energy, without consideration for carbon intensity². New buildings which burn natural gas for heat (or other uses) and generate equal amounts of renewable energy will qualify as zero net energy, despite the emissions associated with burning natural gas.

¹ City of Berkeley. "Berkeley Climate Action Plan"

http://www.cityofberkeley.info/uploadedFiles/Planning_and_Development/Level_3_-_Energy_and_Sustainable_Development/BCAP%20Exec%20Summary4.9.09.pdf

² California Energy Commission "Revised Zero Net Energy (ZNE) Definition" 2011

http://www.energy.ca.gov/2011_energy/policy/documents/2011-07-20_workshop/presentations/Revised_Zero_Net_Energy_Definition.pdf

Because buildings remain useful for decades, and heating systems are not readily replaced, even new zero net energy buildings with renewable energy generation could still contribute to Berkeley's greenhouse gas emissions if they burn natural gas.

Carbon-free alternative energy sources are becoming more prevalent. Alameda County is moving to create a Community Choice Aggregation system, which will buy carbon-free energy directly from providers and provide it to Berkeley residents and businesses. Additionally, with the recent passage of SB 32, the State of California is requiring electric utilities to source 50% of their electricity from renewable sources by 2030, meaning that readily available alternatives to natural gas (namely, electricity) will soon have lower associated emissions than burning gas.

On May 12, 2016 the CEAC adopted this recommendation unanimously: Motion/Seconded by Varnhagen/Amezcuca. Ayes: Gould, Goldhaber, Varnhagen, Kaufman, Lim, and Amezcuca. Noes: None. Absent: Camacho, Lynch. Abstain: None.

BACKGROUND

Natural gas combustion for heating and cooking (including water heating) comprises roughly 8% of California's total greenhouse gas (GHG) emissions³. Within the City of Berkeley, natural gas combustion for residential and commercial use (primarily heating, water heating, and cooking) is responsible for 36% of Berkeley's GHG emissions (as of 2005)¹.

The State of California has a goal of an 80% reduction in greenhouse gas emissions (relative to 1990) by 2050. In 2006, 82% of Berkeley voters passed Measure G, setting a similar goal of an 80% reduction in GHG emissions by 2050 (relative to 2000)¹.

Researchers at UC Berkeley have found that significant electrification, including electrification of heating and water heating, is required in order to achieve the state's greenhouse gas emissions target by 2050 (along with a dramatic shift to low-GHG energy)⁴.

It is likely that the State of California will work to support electrification in the next 30 years. However, because natural gas heating, water heating, and cooking makes up such a large part of Berkeley's GHG inventory – and because it is relatively such a small part of the State's overall emissions – the City must act more aggressively than the State in order to achieve its own emission reduction targets.

Lastly, gas-fueled ranges are a significant fire risk, responsible for an estimated 24,000 fires per year, and 160 civilian deaths nationwide (about 7% of all home structure fires

³ California Air Resources Board, "California Greenhouse Gas Emission Inventory – 2015 Edition" 2015. <http://www.arb.ca.gov/cc/inventory/data/data.htm>

⁴ Wei et al. "Deep carbon reductions in California require electrification and integration across economic sectors" Environmental Research Letters. 2013. <http://iopscience.iop.org/article/10.1088/1748-9326/8/1/014038>

and 6% of civilian structure fire deaths)^{5,6}. Preventing their installation can provide additional health and safety benefits to residents.

ENVIRONMENTAL SUSTAINABILITY

Using alternative energy sources to meet the need for heating, water heating, and cooking will improve local air quality and, in the long term, result in lowered GHG emissions. However, in the short term, there may be an increase in GHG emissions as a result of increased electricity use.

RATIONALE FOR RECOMMENDATION

Berkeley's GHG goals are only achievable by reductions in natural gas usage. New installations and construction present an opportunity to prevent emissions from natural gas from growing, and can reduce emissions if they replace former natural gas fired equipment.

ALTERNATIVE ACTIONS CONSIDERED

CEAC considered taking no action to address emissions from natural gas.

CITY MANAGER

The City Manager takes no position on the content and recommendations of the Commission's Report.

CONTACT PERSON

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⁵ National Fire Protection Association, "Home Fires Involving Cooking Equipment" 2015
<http://www.nfpa.org/~media/files/research/nfpa-reports/major-causes/oscooking.pdf?la=en>

⁶ National Fire Protection Association, "Home Structure Fires" 2015
<http://www.nfpa.org/~media/files/research/nfpa-reports/occupancies/oshomes.pdf?la=en>

