



Land Use & Environment Committee
Commercial Building
Electrification/Decarbonization Code Changes
Discussion

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Title

Commercial Building Electrification/Decarbonization Code Changes Discussion

Recommended Action

Committee Recommendation:

Not referred to a committee.

City Manager Recommendation:

Briefing only, no action requested. If desired the Committee could direct staff to draft an ordinance to implement the concepts discussed and bring to City Council for consideration.

Report

Issue:

Whether to discuss City policies and code changes to advance the electrification of new commercial buildings.

Staff Contact:

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Presenter(s):

Erik Jensen, Olympia Building Official, Community Planning and Development

Background and Analysis:

Climate Goals

In February 2021, Olympia, Lacey, Tumwater, and Thurston County accepted the Thurston Climate Mitigation Plan (TCMP) as the regional framework to substantially reduce local contributions to climate change. The TCMP provides a roadmap to reduce community-wide greenhouse emissions 45% below 2015 levels by 2030 and 85% below 2015 levels by 2050.

In 2021, Olympia joined the Cities Race to Zero, pledging to achieve net-zero emissions by 2040 and set an interim 2030 science-based target, which reflects Olympia's fair share of a 50% reduction in global greenhouse gas emissions by 2030. In January 2022, Olympia City Council also approved Resolution M-2289, declaring the City's intent to electrify city-owned facilities and Olympia's built

environment.

Greenhouse Gas Emissions

In 2019, greenhouse gas emissions in the Thurston County region were about 3.3 million metric tons of carbon dioxide equivalent (MTCO_{2e}); and emissions have been increasing over time, with a 15% increase since 2015. The built environment, including the consumption of electricity and natural gas to power, heat, and cool our buildings, makes up nearly 60% of regional greenhouse gas emissions. After electricity, natural gas represents the second largest source of greenhouse gas emissions from the built environment in the Thurston region (17%).

Building Electrification

Building electrification means using electricity, rather than fossil fuels such as natural gas, for space heating, water heating, and cooking in homes and buildings. As electricity is increasingly produced by non-emitting, renewable sources, such as wind and solar, replacing fossil fuel use in buildings with efficient, all-electric buildings will substantially reduce greenhouse gas emissions from buildings.

Washington already has one of the cleanest, electric grids in the country, and the state is currently on a pathway towards a fully decarbonized electric grid by 2045. Under the Clean Energy Transformation Action (CETA), passed by the state legislature in 2019, utility providers must eliminate coal-fired electricity by 2025, become greenhouse-gas neutral by 2030 (using offsets if necessary), and provide 100 percent renewable energy by 2045.

Both the Thurston Climate Mitigation Plan, and Olympia's High Impact Action Analysis identify building electrification as key strategies to achieve the city's climate goals.

Commercial Building Electrification in Washington

Four cities and counties in Washington have adopted (Seattle, Shoreline, and Bellingham) or are considering (King County) commercial energy code amendments to limit the use of fossil fuels in commercial buildings and large multifamily buildings (four floors or taller). Key decarbonization elements of these policies include:

- Eliminating fossil fuels like gas and electric resistance from most water heating and space heating systems in new construction and substantial alterations.
- Requiring electrical outlets for any gas appliances, to allow later conversion to electric appliances.

Washington State Building Code

Energy use in new buildings in Washington is governed by the state energy code. The energy code is divided into two sections:

- The residential energy code (WSEC-R), which regulates single-family homes, townhomes, and low-rise multifamily buildings (three floors and shorter); and
- The commercial energy code (WSEC-C), which regulates commercial buildings and large multifamily buildings (four floors and taller).

Approximately every three years, the Washington State Building Code Council (SBCC) updates the state's energy code to align with national standards, clarify language, incorporate the latest technologies into new buildings, and continue moving forward on state targets for efficiency and fossil fuel-free new construction. Jurisdictions throughout the state are preparing to implement the 2021

code on July 1st, 2023.

As a part of the 2021 code update cycle, the SBCC has considered proposals that would substantially reduce emissions in new commercial buildings. Many of these considerations have been implemented into the 2021 Washington State Energy Code (WSEC). Although the SBCC did not completely eliminate fossil fuel emission from new construction, it did make the path toward full building electrification an easier option towards code path compliance.

In coordination with energy code experts from the New Buildings Institute (NBI), City staff developed concepts for code changes for City adoption that would assist in bridging the gap between upcoming WSEC and full building electrification (see attachment). Once optional code concepts were developed, staff went out to the community and approached potentially affected stakeholders to solicit feedback. Based on that feedback, NBI is developing draft code language for future City Council consideration.

Neighborhood/Community Interests (if known):

Staff met with multiple professionals from each of these sectors that could be directly affected by code changes to promote building electrification/decarbonization: Design Professionals, Mechanical Engineers, Developers, and Restaurateurs. Comments are summarized in an attachment.

Climate Analysis:

As explained in this staff report, building electrification means using electricity, rather than fossil fuels such as natural gas, for space heating, water heating, and cooking in homes and buildings. As electricity is increasingly produced by non-emitting, renewable sources, such as wind and solar, replacing fossil fuel use in buildings with efficient, all-electric buildings will substantially reduce greenhouse gas emissions from buildings. Potential code changes would therefore help Olympia and the Thurston Region progress toward emission-reduction goals established by the City and the Thurston Climate Mitigation Plan.

Equity Analysis:

Potential code changes could have increased costs, at least in the short term, for appliances for space heating, water heating and cooking. These costs may be passed through by builders, property owners and managers, to tenants or buyers of property. Restauraters may also experience initial costs for cooking equipment that may affect pricing for their customers. In the long-term, life-cycle costs for electrical heating and cooking equipment may be at or below that of gas equipment.

Financial Impact:

None at this time. Future actions to advance building electrification may impact building and energy costs.

Options:

1. Direct staff to draft an ordinance to implement the concepts and bring to City Council for consideration.
2. Direct staff to draft an ordinance to implement specified concepts and bring to City Council for consideration.
3. Direct staff to draft an ordinance and return to the Committee for further discussion.

Attachments:

Electrification Code Concepts for Olympia
Building Electrification Stakeholder Comments