

Electrification and Permitting: It's Complicated!

About Building Permits

Building permits exist to make sure that buildings are constructed the way the law requires — for safety, health, and energy use.

Building permits cost money and can be time-consuming, and some contractors and homeowners are not willing to spend that.

Most new buildings in California are permitted, but many building renovations and additions are not.

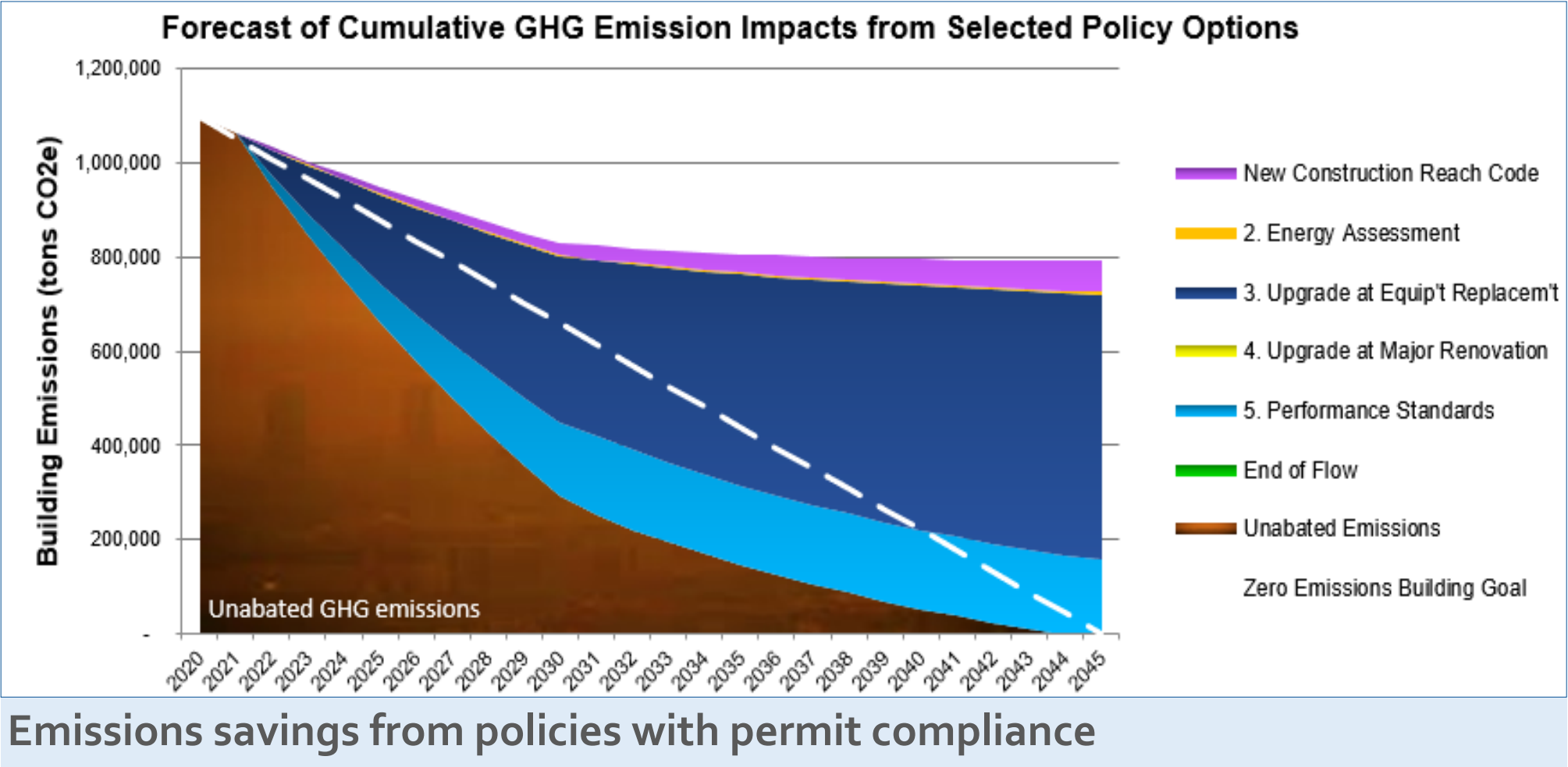
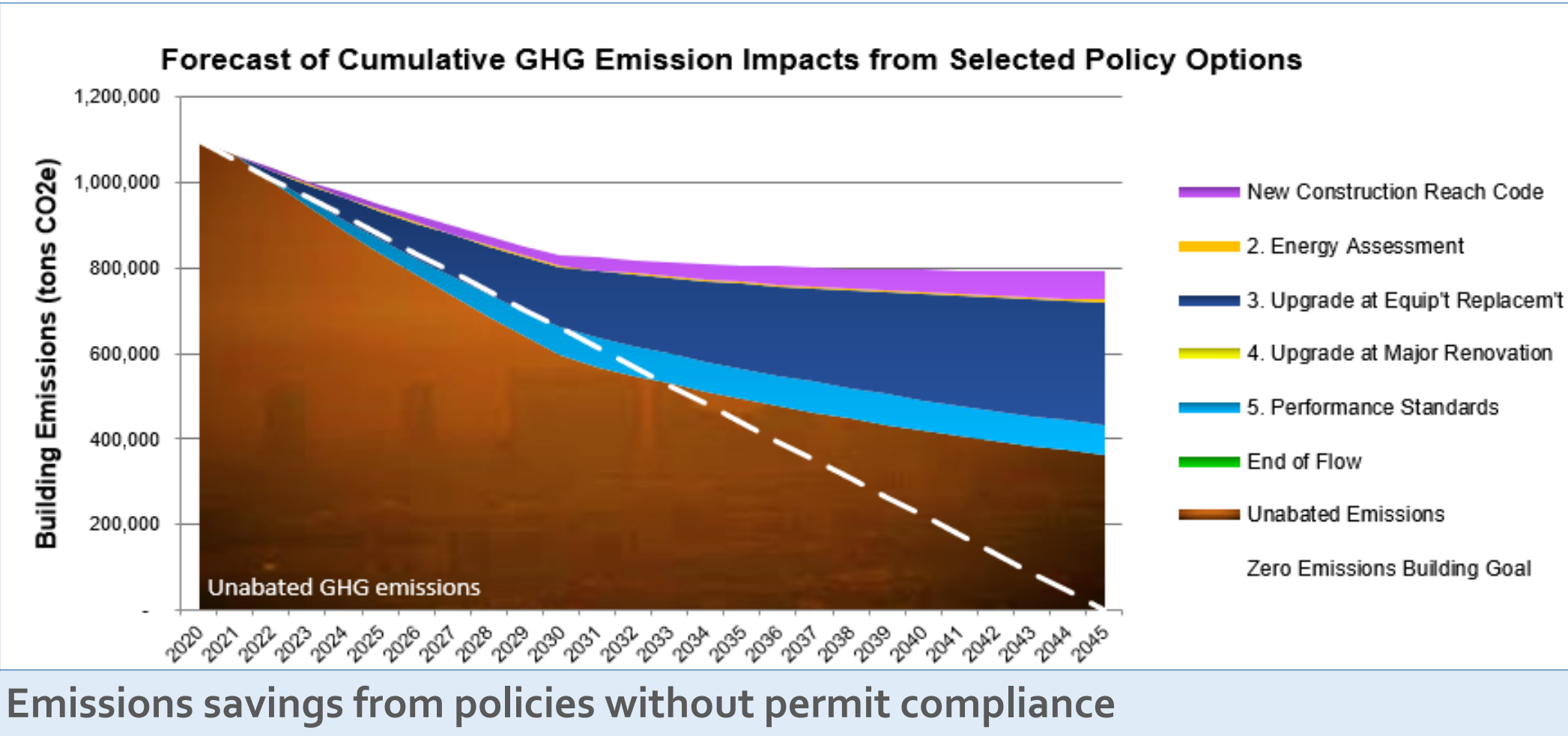
Without building permits, local governments have no way to track building construction and enforce requirements.

How does Permitting Affect Electrification?

Local governments are primarily responsible for permit enforcement, including building energy standards under CCR Title 24, Parts 6 and 11. Permits are required for many energy efficiency improvements, including hot water heaters, insulation, HVAC systems, and more. However, permit evasion remains an issue in many jurisdictions, with permitted HVAC systems only accounting for 8-29% of total installations according to a 2017 DNV-GL report. Several cities, such as Davis, CA and Minneapolis, MN have passed Code Compliance policies that inspect permit and renovation history and charge fees for non-compliance. These have shown to increase permitted work significantly.

A time of replacement policy requires that a natural gas-fueled appliance be replaced with a high-efficiency electric option (such as heat pumps) either at burnout or an early replacement. This policy prevents natural gas emissions from being locked into a home for 10-20+ years. While this policy option has the ability to be very effective, if the rates of permit compliance are low, it may have significantly less impact while costing a jurisdiction time, resources, and political capital.

BayREN developed an Existing Building Policy Calculator that models numerous options for jurisdictions to regulate existing building efficiency and electrification. Below are scenarios for Alameda County if they passed a time of burnout policy with and without first addressing permit compliance.



One Approach: Improving Permitting for Heat Pump Water Heaters

Part of the problem for a new appliance like heat pump water heaters (HPWH) is that both contractors and building department staff are not familiar with the technology or the code requirements. In some jurisdictions, this has resulted in permits for HPWH being more expensive and taking longer to get, especially compared with standard gas-fired water heaters.

BayREN has developed resources, some in partnership with the TECH Permitting Pilot, to help contractors and building department staff get on the same page about what is needed for a permit application and what the building department will be looking for.

These resources include:

- **HPWH Permit Supplement Template**, which building departments can use to supplement their permit forms to ensure that applicants provide all necessary material
- **Electrical Load Estimator Tool**, which assists with calculating the impact of a HPWH on a home's electrical load using two approaches
- **Building Code Assistance Sheet**, which summarizes code requirements and answers common code questions
- **Heat Pump Water Heaters for Accessory Dwelling Units**, which focuses on challenges and tips for installing HPWHs in ADUs

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What can Local Governments Do?

- Find out how your Building Department goes about permitting for electrification projects, and how that compares to permitting for gas appliances
- Share permitting resources with building department staff
- Help educate contractors about code and building permit requirements
- Consider ways to improve permitting rates

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