ELECTRICAL SERVICE PANEL UPGRADE

BESO Resilience Upgrade Measure

MEASURE INFORMATION

Credits: 6

Description:

An electrical service panel upgrade increases your home's overall electrical capacity to support additional electric appliances like heat pumps, EV chargers, or induction stoves. While upgrading can provide more flexibility, it can also require electrical work, permits, and coordination with your utility, which can make it costly and time-consuming. For example, a panel upgrade may also require additional electrical service upgrade to the home, which will need to be coordinated with PG&E. However, many homes don't need a full-service upgrade to go all-electric. Smart panels and load management tools can help you stay within a 100-amp service by shifting the timing of appliances and preventing overloads. See below for information on how to avoid a costly panel upgrade.

A service upgrade may be necessary if your home has a fuse box or an outdated panel with less than 100 amps of capacity, which may not safely support modern electrical loads. If that's the case, upgrading your panel is an important first step toward a safe and efficient all-electric home.

Installation Criteria:

Increase electrical service capacity and install a new electrical panel. New panel must be sized to support electric-ready infrastructure.

Required Verification Documentation:

- Permit + approved final inspection – *Include "for BESO compliance" in the scope of work section of your building permit application.*
- PG&E service upgrade approval

Benefits:

Electric Readiness

HOW TO AVOID AN ELECTRICAL SERVICE UPGRADE:

- **Select appliances that combine two functions into one machine:** For example, the kitchen range (combining an oven and cooktop in one slide-in appliance), which avoids a separate high-power circuit for wall ovens. Another example is a combined washer/condensing dryer machine that avoids needing a second circuit for the clothes dryer.
- **Select power efficient versions of the appliances:** Look for ENERGY STAR–rated or high-efficiency models that use less electricity overall. For example, a 120V heat pump water heater or an efficient induction cooktop can deliver strong performance while using less power.
- **Reduce heat loss and cooling loss by insulating and air sealing:** Improving insulation and sealing air leaks means your heating and cooling systems don't have to work as hard, which reduces how often and how intensely they draw power.
- **Use prioritized circuit sharing and load shifting devices:** Smart panels, smart splitters or circuit sharing devices can prioritize which appliances run at any given time. For example, they can automatically pause the water heater when the clothes dryer is in use to stay within your home's capacity.
- **Use EV charger pausing circuits**: These briefly pause EV charging when other large appliances are running, then resume once capacity is available. This helps prevent overloads without upgrading your electrical service.

See Redwood Energy's Pocket Guide to All Electric Retrofits of Single-Family Homes for more information on each of the strategies above.

ADDITIONAL RESOURCES

Watt-Diet Calculator:

- The Watt Diet Calculator is a free tool from Redwood Energy that helps homeowners and contractors plan all-electric upgrades while staying within a home's existing electrical service capacity. It shows how much power each appliance uses and offers strategies to avoid a costly.

Rewiring America's Electrify Everything:

- Electrify Everything in Your Home: A guide to comfy, healthy, carbon free living is a helpful resource for more information on electrical service panel upgrades and whole home electrification

Bay Area Air District Zero NOx Appliance Rules:

To improve regional air quality and reduce the amount of NOx and particulate matter emissions, the Bay Area Air District has adopted zero NOx emissions standards for natural gas fired furnaces and water heaters. When your gas appliance reaches the end of its life, you'll need to replace it with a zero NOx alternative, such as an electric heat pump.

For more information, see the Air District's Fact Sheet and Frequently Asked Questions on the zero NOx appliance rules. Completing this measure helps you comply with BESO and gets you ready for the new Bay Area District Zero NOx Appliance requirements.

Permitting Resources:

- For information about the permit process, including permit types and requirements, visit the City's permitting webpage. If you're new to the process or have questions, you can also schedule an appointment with a permit specialist for personalized guidance.