



Best Practices Guide for Streamlining Electrification Permitting



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produced by TRC on behalf of



About Silicon Valley Clean Energy

Silicon Valley Clean Energy (SVCE) was formed as a community choice energy agency in 2016 by thirteen local governments to take bold action to address climate change. SVCE is working closely with member agencies to pursue a comprehensive approach to address the climate crisis. The SVCE mission is to address climate change by providing clean, carbon-free electricity at competitive rates – and in the innovative spirit of Silicon Valley, through bold new decarbonization and electrification programs. To date, the SVCE Board of Directors has committed over \$1B to new renewable energy projects and more than \$25M for innovative programs that reinvest in the community while helping to achieve local climate goals. For more information on how SVCE is driving innovation to address the climate crisis, please see the following strategic plans.

1. [Decarbonization Strategy & Programs Roadmap \(2018\)](#)
2. [SVCE Integrated Resource Plan \(2020\)](#)
3. [Electric Vehicle Infrastructure Joint Action Plan \(2019\)](#)
4. [Building Decarbonization Joint Action Plan \(2020\)](#)

About This Guide

This document was developed in anticipation of an increase in permit activity due to the electrification of homes and vehicles as California continues to decarbonize. The Best Practices Guide for Streamlining Electrification Permitting (‘the Guide’) provides recommendations to streamline the permitting and inspection processes and suggestions to support and prepare local jurisdictions for the transition.

Developed on behalf of SVCE, the best practice recommendations outlined below are based on the results of interviews and roundtable discussions with local building officials in the thirteen SVCE member agencies, as well as contractors, industry advocates, and other practitioners. These recommendations draw from effective existing practices among local jurisdictions, as well as needs identified through a data collection process which can be broadly applicable to any jurisdiction or advocate interested in encouraging electrification.

The Guide also highlights recommendations for third-party entities (utility providers, community choice aggregators, and other industry organizations) to support jurisdiction’s electrification efforts. These opportunities are presented with the understanding that each jurisdiction faces a unique set of circumstances. While some jurisdictions may have already implemented some of these opportunities, other opportunities may not be feasible for all jurisdictions in the near term given budget and staff constraints, as well as the additional challenges posed by the COVID-19 pandemic. The opportunities presented here also acknowledge jurisdictions’ mandate to enforce building and safety standards and should not be construed as an effort to limit or reduce that enforcement.

Introduction

To meet California’s climate goals, all new buildings will need to be all-electric and at least 20% of existing buildings will need to convert their natural gas appliances to electric alternatives by 2030¹. While much work has focused on the policy and financing mechanisms necessary to enable the transition to electrification, little attention has been given to the impact on local building departments and permitting staff. The Guide provides support for local jurisdictions to plan and prepare for this transition in a way that maximizes benefits and minimizes strain on staff and budgets.

Across the state, a majority of homes have several existing natural gas appliances such as furnaces, water heaters, stove tops, and clothes dryers. While there are electric alternatives to each of these appliances like heat pump heating ventilation & air conditioning (HVAC) systems, heat pump water heaters, induction ranges, and heat pump clothes dryers, each of these technologies will require a building permit for the new system or the new electrical supply to power it. Many local jurisdictions across the state already have streamlined permitting processes related to solar installations and electric vehicle (EV) charging. Other electrification technologies have yet to be seen as common enough to warrant attention. This is changing.

With the electrification of millions of homes on the horizon and as many as seven systems requiring building permit authorization in each typical home, local building departments need to be prepared to accommodate the anticipated influx of permit activity over the next decade. Drawing from the existing best practices from solar installation and EV charging permit streamlining, this Guide aims to provide recommendations for local jurisdictions, third-party entities, and advocates to better prepare for the transition away from gas.

Summary of Recommendations

The best practice opportunities identified in the Guide are organized into two categories: one geared toward opportunities for improving processes within local jurisdictions, and one with recommendations for third-party organizations (utility providers, community choice aggregators, and other industry organizations) to support jurisdictions in encouraging electrification. For each category, recommendations are listed in approximate order of priority where items early on the list should be completed before items later in the list.

Each recommendation is described in detail in the following sections.

Local Jurisdiction Best Practices

1. Identify an internal “champion” to coordinate streamlining efforts
2. Leverage state-mandated expedited review requirements and resources
3. Seek out training resources and support staff training to keep up to date on electrification technologies

¹ Neumann, Ingrid. “Key Building Decarbonization Strategies towards California Climate Goals.” PowerPoint presented at Redwood Energy Zero Carbon Retreat, January 21, 2021.

4. Identify electrification projects at the outset of the process, and provide proactive pre-application resources
5. Evaluate permit fee structures to achieve parity between electric and natural gas equipment, or to favor electrification
6. Develop dedicated electrification application, permit review, and inspection processes
7. Track electrification permitting trends
8. Track application and inspection errors for electrification technologies
9. Implement web-based systems for application submittal, permit review, and inspection coordination
10. Align plan check, inspection requirements, and procedures across jurisdictions

Third-Party Support Recommendations

11. Develop and support training resources for local jurisdictions
12. Provide guidance and framework for aligning plan check and inspection requirements across jurisdictions
13. Support third-party plan check or inspection services through incentive programs or other initiatives

Local Jurisdiction Best Practices

The sections below outline opportunities for local jurisdictions to streamline permitting and inspection processes for electrification technologies. The opportunities outlined below are presented in rough order of priority where items early on the list should be highest priorities for jurisdictions.

1. Identify an internal “champion” to coordinate streamlining efforts

While being the most obvious opportunity, identifying a “champion” can pose the greatest challenge since it designates a single point-person or team to promote and advance change within a jurisdiction. This champion can act as a bridge between policymakers and the community and can take the form of a staff member, department, city council member, or advocate to guide efforts and help maintain consistency within electrification goals.

2. Leverage state-mandated expedited review requirements and resources

The State of California has legislated specific mandates for expedited review and preferential pricing on certain electrification technologies. These include: expedited permit and inspection processes for residential photovoltaic (PV) systems less than 10 kW (AB 2188), limits on permit fees for residential PV systems (AB 1414), and expedited permit and inspection processes for residential EV charging (AB 1236).

Although many jurisdictions in California have implemented some or all of these requirements, prioritizing alignment with state-mandated requirements has several benefits, including the ability to leverage existing resources, and providing an example strategy for streamlining other electrification technologies.

The mandates for expedited processes for PV and EV charging allow for flexibility by requiring each permitting agency to develop a submission requirement checklist, and only mandating expedited processing for the applications that meet all items on the agency’s checklist. As such, agencies can ensure that the expedited processing fits their internal processes and does not compromise their ability to confirm compliance with building and safety standards.

Because the state has prioritized PV and EV charging, they are also the technologies with the most existing resources that jurisdictions can leverage to streamline their own processes. For example, the Governor’s Office of Business and Economic Development highlights the [City of West Hollywood](#), [Sonoma County](#), and the [City of Fresno](#) as best practice examples for permitting checklists. They also provide an [Electric Vehicle Charging Station Permitting Guidebook](#) as a reference for jurisdictions in developing streamlined processes.

Additionally, the California Electric Vehicle Infrastructure Project (CALeVIP) prioritized jurisdictions who adopted all AB 1236 requirements during the 2020 funding period². Jurisdictions can leverage the state’s

² Fauble, Brian. “Clean Transportation Program.” <https://efiling.energy.ca.gov/GetDocument.aspx?tn=229614&DocumentContentId=61033>, August 30, 2019.

mandated streamlined permitting requirements to ensure they are posed and eligible for future funding opportunities.

Requirements in AB 1236 for EV charging permits, such as allowing electronic signatures, preventing homeowner association approval, and requiring a single complete “deficiency” or “corrections” notice for each application are best practices that agencies can adapt for other permit processes as well. Many of the subsequent best practice recommendations below build on the foundation of the processes outlined here.

3. Seek out training resources and support staff training to keep up to date on electrification technologies

In developing this Guide, the consultant interviewed building department staff from the thirteen SVCE communities and solicited their input on frequent barriers. One common need that building department staff identified was training and resources on electrification technologies. Training sessions to support agency staff in staying up to date on the latest technologies helps ensure they are well-equipped to review and inspect these technologies when they encounter them in permit applications and in the field. Providing agency staff with training opportunities to familiarize themselves with new technologies, building systems, and mandates will ensure staff is well prepared and will help keep plan review and inspection processes efficient and effective.

Trainings could be supported and organized by third-parties, as described in the Third-Party Support Recommendations section, below.

4. Identify electrification projects at the outset of the process, and provide proactive pre-application resources

Identifying electrification projects as early as possible in the permit application process, whether through application guidelines or checklists, dedicated electrification applications, or electrification-specific selection options on standard applications, helps both customers and agency staff ensure that applications are complete and accurate for a given electrification technology. Furthermore, providing pre-application resources, such as guidelines or checklists, for these technologies helps customers provide complete and accurate permit applications, help reduce the burden on plan reviewers and inspectors by clearly presenting the minimum submittal requirements and establishing standard review processes, and can shorten plan review timelines by eliminating the need for jurisdictions to request additional information or documentation.

Building on the example of the EV charging and PV submittal checklists, described above, these materials can create awareness of the potential issues and challenges associated with electrification technologies, and outline any specific requirements for each agency. Providing submittal checklists also helps jurisdictions proactively communicate any unique requirements their review process or local ordinances may require.

5. Evaluate permit fee structures to achieve parity between electric and natural gas equipment, or to favor electrification

Establishing permit fee consistency between electrification technologies and natural gas appliances can help reduce the current financial burden associated with electrification. Permit fee parity can also be pursued in conjunction with developing dedicated application materials for electrification technologies, as described above.

In many cases, existing fee structures result in higher permit fees for electrification technologies, especially appliance and equipment retrofits compared to natural gas appliances. For example, replacing a natural gas range with an electric range typically requires a building permit for the new high voltage outlet, whereas installing a new natural gas range does not require any permit. However, it should be noted that most jurisdictions throughout California base permit fees on a cost recovery model, where fees are determined based on the cost to the jurisdiction for reviewing applications or conducting inspections. Any effort to reduce existing permit fees would likely require some form of subsidy, either through other permit fees or another source of funding.

One example of a strategy that provides a level of permit fee parity is Santa Clara County's combined mechanical-electrical-plumbing permit application that charges a flat rate for up to three items (for example a heat pump water heater installation would require a permit for a water heater replacement and the supporting electrical work).

Jurisdictions interested in signaling a preference for electrification in pursuit of decarbonization goals may want to consider strategies for providing preferential or discounted permit fees for electrification technologies. In this case, permit fees for these technologies would be lower than those for natural gas appliances to indicate the agency's promotion of building electrification. As noted above, this strategy would require the jurisdiction to absorb the cost of plan review for those technologies through other revenue sources, which may not be feasible for all agencies.

6. Develop dedicated electrification application, permit review, and inspection processes

Standardized application requirements, application processes, plan check processes, and inspection guidelines for common electrification technologies such as heat pump water heaters that combine previously unrelated permit processes (in this case, water heater replacement, and new electrical receptacle/circuit) would help ensure customers are providing pertinent information in the permit application, which will help accelerate the plan review process.

Building on the state-mandated expedited processes for PV and EV charging, as well as pre-application resources, as outlined above, can help streamline the overall project process by focusing customer and agency staff attention on the specific needs of electrification projects. In many cases, electrification technologies are new and emerging which can pose a challenge to contractors and building officials that did not experience this with natural gas appliances. For example, heat pump water heaters have entirely different performance and space requirements from natural gas water heaters, while systems such as battery storage require the development of entirely new review processes for building officials.

Developing electrification-specific application materials will help customers provide the necessary information in the permit application by indicating what the permit application is for and how the application should be routed through the department. This in turn will help building department staff accelerate the plan review process. One example for this type of approach is Cupertino’s dedicated “Alternative Energy” permit application for PV, EVSE, and battery storage permit applications.

Developing standard, written internal plan review and inspection protocols for electrification technology will also help ensure consistent enforcement between building department staff and across projects. Consistent enforcement is also essential for helping customers understand the requirements for successful permit applications and installation inspections.

7. Track electrification permit trends

Without specific data on electrification permits, local jurisdictions have limited awareness of which electrification technologies are the most common or how often customers are choosing electrification in place of natural gas appliances. Having data on electrification permit trends will give agencies the knowledge needed to prioritize efforts for developing resources and dedicated application materials, or addressing common application errors, to better meet customer needs.

Although many agencies have some level of permit activity tracking, especially for major electrification technologies such as solar PV, EV charging, and electric panel upgrades, very few are actively tracking specific electrification appliance and equipment retrofits like heat pump water heaters and heat pump HVAC systems. Having data on permit application trends will give agencies the knowledge needed to adapt permitting and inspection processes and prioritize strategies based on needs.

8. Track application and inspection errors for electrification technologies

To prioritize topics where jurisdictions should develop supporting guidance to help customers avoid errors, jurisdictions first need to understand where customers most frequently make mistakes on permit applications and during installations. As with the permit tracking above, without specific data on application and installation errors, jurisdictions have limited awareness of the errors customers are most frequently making when applying for electrification permits and installing electrification technologies. Errors on applications can also extend the permit process which may impact the project timeline and cost. Having data on the application and inspection errors will give agencies the knowledge needed to prioritize efforts for developing support documentation to address those errors and ensure an efficient application process for the customer.

9. Implement web-based systems for application submittal, permit review, and inspection coordination

As a result of the COVID-19 pandemic, many jurisdictions quickly had to convert from a system based largely on paper applications and in-person consultation to a fully remote web-based system almost instantaneously. As these ad-hoc solutions evolve into permanent strategies, implementing comprehensive web-based systems that support all steps in the process from application submittal, through plan review and inspection coordination, will help ensure that both customers and agency staff

are familiar with new systems, and will help improve the overall efficiency of the process. Although different jurisdictions will have different needs and priorities for these systems, solutions that allow access to application materials from all necessary agency staff, integrate any relevant resources or submittal requirements, allow customers to track the status or progress of their applications, provide logical and legible workflows and communication to agency staff, and are customizable to the needs of individual jurisdictions are likely to be most successful.

While web-based systems are often assumed to represent an automatic improvement in overall efficiency, for permitting agency processes based on physical “paper trails” and customer relationships based on over-the-counter interactions, the transition to web-based systems represents a significant change in overall workflow. The success and efficiency of web-based systems for the permit application, plan review, and inspection coordination processes will depend largely on how well these systems accommodate the varied needs of both agency staff and customers.

10. Align plan check, inspection requirements, and procedures across jurisdictions

The most common concern from contractors and installers is the variation in application processes and requirements for electrification technologies across jurisdictions. For the many contractors who work across multiple jurisdictions, learning new application procedures for each agency is a time-consuming and costly process. Aligning permit application requirements and processes would significantly reduce the workload for customers and potentially reduce application errors and the need for corrections by providing a more consistent application and review experience.

Due to the level of collaboration and coordination required, agencies could look to third-party entities, such as community choice energy agencies, utility providers, or professional organizations such as California Building Officials (CALBO) to support and coordinate this effort (see Third-Party Support Recommendations, below).

Third-Party Support Recommendations

In addition to the local jurisdiction best practices outlined in the previous section, there are also opportunities for third-party entities to support and encourage efforts to streamline electrification permitting and inspections. The opportunities outlined below are geared toward entities such as utility providers, community choice aggregators, or industry organizations such as CALBO, either in coordination or individually.

11. Develop and support training resources for local jurisdictions

As noted in the Local Jurisdiction Best Practices above, a common need that building department staff identified was training and resources on electrification technologies. Many electrification technologies are new or emerging that are less familiar to building departments and may require different strategies for evaluating permit applications and inspecting installations. Building officials also noted that training opportunities have been further limited due to the COVID-19 pandemic.

Developing, supporting, and coordinating training sessions or other educational resources will help agency building departments stay up to date on the latest technologies so they are better able to review and inspect these technologies when they encounter them in applications or in the field.

Challenges with technology familiarity may be further exacerbated in scenarios that require additional departmental review such as planning or fire department review. Training sessions and educational resources should also address concerns these departments may have about electrification technologies.

12. Provide guidance and framework for aligning plan check and inspection requirements across jurisdictions

The variation in application processes and requirements for electrification technologies across jurisdictions is a common concern for customers. Variations in application processes and review procedures are likely further heightened by differences in familiarity with new technologies between building departments. While there are likely to be many opportunities for jurisdictions to align permit application procedures and plan review and inspection protocols to limit variation between jurisdictions, individual agencies are unlikely to be able to commit the necessary resources to this kind of regional coordination.

A trusted third-party entity (such as CALBO) may be ideally suited to develop model plan review and inspection protocols for electrification technology that jurisdictions could adopt or modify to suit their needs. This type of model procedure could help establish more uniform processes across jurisdictions, and provide ready-made application checklists, and documented plan check and inspection procedures for jurisdictions while limiting the burden on the agency.

13. Support third-party plan check or inspection services through incentive programs or other initiatives

Plan reviews and inspections are a time-consuming and resource-intensive process for both jurisdictions and customers. One recommendation initially identified during an industry roundtable event was to have incentive program sponsors (i.e., utility providers, or community choice energy agencies) provide third-party plan review or inspection services as part of a utility or other incentive program promoting electrification technology. The use of third-party or independent plan reviewers and inspectors is a relatively common practice to support building departments, especially on larger projects that require significant or ongoing inspection. Given the rapid pace of technological change in this space, third-party plan reviewers or inspectors can support incentive program installations, help reduce the burden on local jurisdictions, and can ensure that the plan reviewer or inspector is an expert on the program technologies.

For example, jurisdictions can coordinate with a third-party to provide regional expertise on an advancing technology like battery storage systems. Depending on the details of the program structure, this strategy could also help address inspection fee disparities within electrification installations, assuming the program funds cover the full cost of the inspection. Given the potential short-term increase in permit activity generated by an incentive program, providing third-party support could also help jurisdictions manage staff workload. If utilized by multiple neighboring jurisdictions this would encourage permit and inspections processes are consistent regionally.