February 27, 2018

Marin County Board of Supervisors
3501 Civic Center Drive
San Rafael, CA 94903

SUBJECT: First reading of proposed updated Green Building Ordinance amending Marin County Code Title 19 (Building Code).

Dear Supervisors,

RECOMMENDATION: Initiate an amendment to the Building Code updating the County's green building requirements by taking the following actions:

1. Provide direction on the Board’s preferred option for Electric Vehicle (EV) requirements
2. Read proposed Ordinance by title only; and

SUMMARY: On February 13th, 2018, CDA Staff introduced amendments to Marin County Code Title 19 (Building Code) to update the County’s green building and energy efficiency standards. The Board hearing and draft ordinance were preceded by public outreach that included notification to a wide variety of organizations on the County’s Sustainability email subscribers list; notification to the Builders Association; presentations to building officials and contractors; and posting of the proposed ordinance on the County’s Green Building website. The proposed standards include three major elements: 1) energy efficiency requirements beyond state code for new single family, multifamily, and commercial projects; 2) green building requirements for new construction, remodels, and additions; and 3) electric vehicle charging requirements.

The proposed code changes implement the County’s Climate Action Plan by supporting a transition away from natural gas towards all-electric buildings, adding zero-net electricity standards for large new single-family homes, and increasing adoption of green building practices such as reducing water use and increasing EV charging. The standards were developed with flexibility and clarity for applicants in mind, and may facilitate a broader effort to create consistent countywide green building codes.

During the initial first reading on February 13th, the Board requested that staff return with options for a range of electric vehicle charging requirements. In response to this directive, staff has developed four options for increased EV capacity in multifamily and commercial developments for the Board’s consideration as follows:

Option 1
The existing proposed standards recommends that for both multifamily and commercial new development with 2-10 onsite parking spaces, 2 parking spaces be
built to an EV Ready\(^1\) standard. Where new development proposes more than 10 onsite parking spaces, the proposed code requires that the project build 10% of total spaces to be EV Ready and an additional 10% to be EV Capable\(^2\). The same standards apply to multifamily and commercial remodels where parking lot modification is included in the scope of project proposal.

**Option 2**

In response to the Board’s interest in a standard that requires 100% EV Capable parking spaces, staff have developed an option that modifies the original proposed standard by requiring 10% of the parking spaces to be EV Ready with the remaining 90% of the spaces to be built EV Capable in new multifamily and commercial developments. These standards would also apply to remodels where the parking lot is being modified.

A similar standard was recently adopted in the City of San Francisco. After consulting with San Francisco staff and reviewing their ordinance language, County staff has included this recommendation with a load cap of 20% simultaneous charging.

The load cap helps to manage potentially significant electricity grid impacts if all spaces were charging at full capacity at the same time. To exemplify the impact of a 100% EV Capable ordinance on both the grid and project scope, consider a new 100-space parking lot at 240 volts / 40 amps per spot. With 100% EV Capability and without a load cap on simultaneous charging, a two-phase\(^3\) service design would require electrical service capacity for 4,000 amps (100 spots x 40 amps each), additional to all other loads for the building. Under this scenario, service capacity for simultaneous EV charging at 100% of spaces could easily exceed the electrical service requirement for the entire multi-family or commercial building. By placing the minimum electrical service dedicated to EV charging at a level sufficient to support simultaneous “Level 2” (most common) charging at 20% of vehicle spaces, the increase in electrical service capacity dedicated to EV charging is reduced to 800 amps. Without project-specific analysis of potential grid impacts and cost factors to applicants to upgrade their service infrastructure with PG&E (such as the need to potentially add an additional transformer, switchgear, or other related infrastructure on site), staff strongly recommends a load cap of 20% simultaneous charging if the Board chooses to require 100% of parking be EV capable.

This option also includes the ability for a developer to install a “charging management system,” which allocates available electric service capacity among a set of EV chargers. In the above example, a charging management system could potentially support the installation of EV chargers at all 100 spaces with 800 amps dedicated to EV charging. Several vendors currently offer UL listed charging management systems. Similar ordinances in both San Francisco and Oakland set the minimum electrical service dedicated to EV charging at a level sufficient to serve 20% of spaces simultaneously for the express purpose of providing the flexibility to

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\(^1\) “EV Ready” refers to an EV-ready parking space that has allocated 208/240V 40-amp panel capacity, conduit, wiring, receptacle, and overprotection devices, with an endpoint near to the parking space.

\(^2\) “EV Capable” refers to a parking space with conduit installed and allocated 208/240V 40-amp panel capacity for future EV charging stations

\(^3\) This example is illustrative. A 3-phase service design would entail different capacities but the overall concept applies.
support charging at any combination of spaces, including up to 100%, using these management systems.

Utility-side cost exemptions that are contained in the CALGreen Code and in San Francisco’s standard, as well as existing hardship exemptions in the County’s code, have also been retained in this update. These provisions are an important means of addressing potential barriers to affordable housing and multi-family housing that may result from the need for electrical service upgrades that could strain or exceed the financial feasibility of projects that serve the County’s housing goals.

Option 3
The Board may also choose to consider an approach that combines different elements of the proposed code and the 100% requirement. Option 3 includes the same requirements for new development of multifamily and commercial projects as Option 2 but provides alternative requirements for additions and alterations that take into consideration the scope of the project to maximize cost effective improvements and minimize the disincentive for applicants to obtain required permits in an effort to avoid additional cost impacts.

For remodels where the service panel is modified as part of the proposed project, but the parking lot is not being reconstructed or otherwise modified, both multifamily and commercial projects would be directed to add capacity for 20% of parking spaces, but would not be required to modify the parking lot to add conduit. For remodels where the service panel is not being modified, but the parking lot will be modified, both multifamily and commercial projects would be directed to add conduit to all parking spaces. Where existing electrical service will not be upgraded in the existing project scope, panel capacity must be designated for EV service to the maximum capacity allowed by the existing electrical service.

In weighing additional requirements for remodel projects, consideration was given to minimizing the potential for permit avoidance. By way of example, if a building owner is required to add upgrades outside of the original scope of work, (i.e., requiring them to rip up concrete to lay conduit when it was not already included in the scope/budget) the project cost could grow to the extent that it creates a disincentive for an applicant to avoid applying for permits.

Option 4
As we continue to gather feedback from developers and advocates on the proposed EV standards, the final option is to adopt the CALGreen Tier 1 levels, which vary based on parking lot size. For reference, a new multifamily development with 17 or more parking spaces would require 5% of the spaces to be EV Ready to comply with CALGreen Tier 1. This option would allow for consistency with other Marin jurisdictions as the building codes of Larkspur, Fairfax, Mill Valley, Novato, San Rafael and Tiburon currently have this requirement. The remaining cities and towns require only the base CALGreen standards which are slightly lower than Tier 1.

DISCUSSION: The goal of the green building update process has been to increase green building requirements at a local level while remaining tied to the detailed technical work completed at a state level to guide construction professionals in a clear and detailed manor. By expanding requirements for electric vehicle charging beyond 20% of parking spaces, the County would be setting policy that necessitates more careful consideration in regard to grid stability and cost impacts to applicants.
Additionally, a primary goal of the process is to increase consistency with other Marin jurisdictions, several of which do not have any standards exceeding the current state codes. By increasing stringency beyond the recommended levels, without buy in from interested jurisdictions, we reduce the opportunities for consistency in the County.

It’s also important to note that the non-EV portions of the ordinance, which includes options for all-electric homes, sets energy efficiency targets for new projects, and increases flexibility and clarity for applicants must be submitted to and approved by the California Energy Commission after the Board’s adoption, and must go through a 60-day public comment period there before the new code standards can be implemented by the local jurisdiction. If the standards are approved at the March 13th merit hearing, the standards can reasonably be expected to be implementable in May or June 2018.

All of the above options would be in place for approximately 18 months before adoption of the next State code update cycle, scheduled to go into effect on January 1, 2020. Adoption of the ordinance at the March 13th merit hearing would maximize the amount of time the proposed standards are implemented before new codes go into place. In the intervening period, Board may direct Staff to host a stakeholder engagement effort, including multifamily and commercial developers, EV advocates, PG&E, and electrical professionals, to help inform if and how local EV requirements may be updated in conjunction with the upcoming State code update.

RECOMMENDATION: If the Board chooses not to adopt Staff's original proposal for EV charging requirements as presented with the Green Building Ordinance on February 13th (Option 1), then Staff's secondary recommendation is for the Board to select Option 3 which increases EV infrastructure but takes into consideration potentially significant electricity grid and cost impacts.

FISCAL/STAFFING IMPACT: This action does not impact the General Fund.

REVIEWED BY:
[ ] Department of Finance [ ] N/A
[X] County Counsel [ ] N/A
[ ] Human Resources [X] N/A

SIGNATURE: Approved by:
Alice Zanmiller               Brian C. Crawford               William Kelley
Planner                      Director                      Deputy Director

Attachments:
1. Ordinance Adopting Amendments to Marin County Code Title 19 (Building Code)
2. EV Options Overview Table
3. Proposed Chapter 19 Text Amendments with Track Changes
4. February 13, 2018 Board Materials on Green Building Ordinance
5. Updated Communications