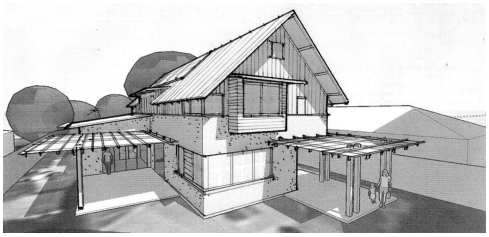
# PROJECT GREEN HOME

the beyond platinum LEED, zero-net energy, passive house



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10 September 2021

*Dear Dedicated Commissioners and Staff*

As a father, chemical engineer, business owner and man of faith, I am writing to explain why the proposed CALGreen Code addressing electric vehicle (EV) charging infrastructure in new construction is not sufficient and actually fails to meet the needs of the majority of the Californians who will be living in the multi-family dwellings (MFDs) built subject to the 2023-2025 code as well as the climate targets of California as a whole. ***As such, I am requesting that a public hearing be held to discuss the proposed CALGreen code as related to EV infrastructure.***

***Comment Summary: For new apartments and condominiums, the proposed code should require a low power Level 2 receptacle for <u>every unit</u> that has access to parking.*** EV adoption rates in California are about to take off as EVs already have lower total cost of ownership, will soon have initial price parity and then better. However, for those who live in MFDs, *<u>access to charging will be THE factor controlling adoption.</u>* Installing charging in MFD post construction, as detailed in the ISOR, is rife with difficulties, from the great expense to dealing with apartment complex management and or the Home Owners Association. By ***providing a low power Level 2 receptacle for every MFD unit that has access to parking, the installation problem is dealt with at the time of construction resulting in the lowest cost to the developer, building manager, resident family and society as a whole.***

***Owning an EV Benefits You, the State, the Electrical Grid and the Climate***
Driving electric is advantageous for different reasons to different actors:

- The owner/ user. EVs are a money saver compared to their internal combustion engine (ICE) equivalent and with fueling where one lives or works; EVs provide convenience and time-savings.
- The State. EVs were California's biggest export in 2020 at 5.7 billon[1]; provided over 35,000 jobs in 2019 and are projected to add another 33,000

[1] https://www.worldstopexports.com/californias-top-10-exports/

jobs by 2024[2]. Per ZipRecruiter.com, there are 11,257 unfilled jobs in the electric vehicle space in California.

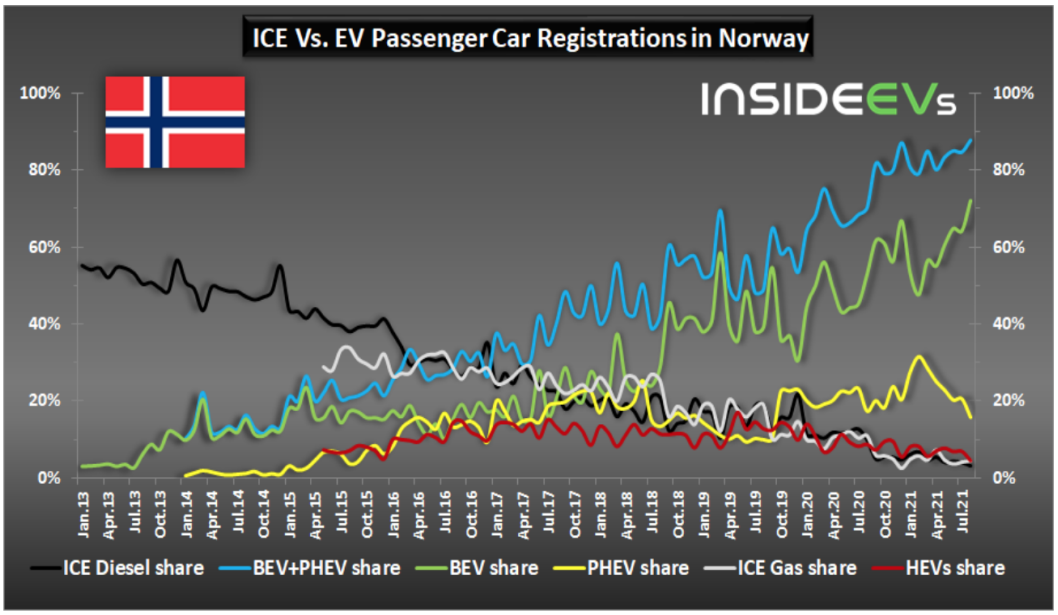
- The Electric Grid. EVs can support the electrical grid by charging off peak, during periods of high renewables, and have the potential to provide storage.
- The Climate. EV emissions, well to wheel, are much less than their ICE counterparts and as the electric grid decarbonizes, the EV well to wheel emission factors for both criteria and carbon only gets better.

state of California recognizes all these benefits and more by supporting EV adoption through multiple programs at the CEC, CPUC, CARB plus local programs at the county and city levels.

***EV Adoption Rates are About to Skyrocket***

Norway[3], has incentivized the initial purchase price plus other perks, and has an EV adoption rate in excess of 85%. Figure 1 below documents this adoption rate since 2013 when EVs were first introduced in significant numbers. It is clear that over last 8 years, EV sales in Norway have take off while diesel and gasoline car sales have tanked[4].

Figure 1, New EV Registrations in Norway




[2] https://www.greencarcongress.com/2021/04/20210422-aee.html

[3] The country of my father; the majority of my Norwegian relatives drive EVs.

[4] https://insideevs.com/news/530558/norway-plugin-car-sales-august2021/

In California, most EVs already have a total cost of ownership less than the gasoline equivalent model. However, the EV initial purchase price is typically higher than the gasoline version. This is about to change with the EV/ gasoline initial price on trajectory to equilibrium in 2023[5]. In addition, as shown in Figure 2, there are proposed federal government purchase incentives that will likewise immediately drive adoption[6].

Figure 2, Proposed Clean Energy for America Act (as of September 11, 2021)

The latest one is the Clean Energy for America Act, which would increase the incentive to up to $12,500 and remove the threshold of 200,000 EVs delivered by manufacturers.

Now the House Ways and Means Committee has approved a new version of the EV incentive program as part of their $3.5 trillion social spending bill.

Here are the main changes:

- Remove the 200,000 vehicles per manufacturer cap
- Keep the $7,500 incentive for new electric cars for 5 years
- Make the $7,500 incentive a point-of-sale discount instead of tax credit
  - EVs with battery pack smaller than 40 kWh are limited to a $4,000 incentive
- Add an additional $4,500 for EV assembled at union factories
- Add another $500 for EVs using battery packs with 50% of components (including cells) are made in the US
- After the first 5 years, the $7,500 becomes only for US-made electric vehicles and it applies for another 5 years.
- They are introduce price limits on the EVs eligible for the incentives:
  - Sedans under $55,000
  - SUVs under $69,000
  - Pickup trucks under $74,000
  - Vans under $54,000
- They are also introducing caps on income to get access to the incentives, but they are fairly high at an adjusted gross income of up to $400,000 for individuals and up to $800,000 for joint filers.

***Accessibility to Home Charging Drives Adoption***

Ask most EV drivers where their favorite, most convenient, most reliable, and likely cheapest place to charge is and the answer is going to be "at home" This fact has been documented numerous times[7] [8] including by Consumer Reports[9] and the ISOR.

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[5] https://www.nytimes.com/2020/09/20/business/electric-cars-batteries-tesla-elon-musk.html

[6] https://electrek.co/2021/09/11/dems-propose-new-electric-car-rebate-tesla-disadvantage/

[7] https://www.caranddriver.com/news/a30031153/ev-charging-guide/

[8] https://afdc.energy.gov/fuels/electricity_charging_home.html

[9] https://www.consumerreports.org/hybrids-evs/cr-survey-shows-strong-interest-in-evs-a1481807376/

***Proposed Code Fails to Serve All MFD Residents***
Current code requires approximately 40% of the parking spaces associated with a MFD be either Level 2 EV Capable (15%) or LPL2 EV Ready (25%) and terminating with a J1772 charger (5%). Given the increasing options/ requirements by developers to provide less or even no parking per unit, it is highly likely that parking will be assigned by MFD unit (as opposed to open parking). Under this scenario, 60% of the MFD residents are, in the vernacular, S.O.L..

***Government has a Duty to do What's Right for the People***
As documented by the current ISOR and more, the cheapest time to install infrastructure is during building construction. Knowing that this charging infrastructure is necessary, the government does a disservice to society by forcing a more expensive and complex solution. As stated in the ISOR, installing charging in MFD post construction is rife with difficulties, costing six or more times the expense of initial construction, and contributing to a "lack of decision making power" by the residents - what I call the "hassle factor" of dealing with apartment complex management and/or the Home Owners Association. Worse yet is having an investor owned utility (IOUs) complete the installation at a cost of $14,000[10] or more than the expense of initial construction. And these IOUs, as is their right, are going to pass those costs back to us, the rate payers, plus an additional percentage for the IOU shareholders[11]. Again, it is the government's duty to allocate costs to the benefit of society as a whole versus protecting one (small) player.

***Proposed Code Fails to Serve California***
California claims to be a climate leader and committed to creating living-wage jobs. This code fails to do both. 40% is not a signal of climate leadership nor a sign that California is committed to supporting those working in the up and coming electric vehicle greater industry.

***Conclusion***
EVs are coming and because the economic benefits are so advantageous, adoption will be faster than expected. California has the opportunity for greater economic growth, more and better jobs plus climate leadership. ***Simply change the code to require low power Level 2 receptacle for every MFD unit that has access to parking.***

***Sven Thesen,***
***Project Green Home Co-Founder***

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[10] https://www.pge.com/pge_global/common/pdfs/solar-and-vehicles/your-options/clean-vehicles/charging-stations/program-participants/EV-Charge-Network-2021-Q1-Report.pdf

[11] In full disclosure, I have and will own PG&E and other CA IOU stock; have worked for PG&E and have a pension coming from them.