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Why Target Homeowners When Carbon Capture Technology is Available

Please repeal the 2019 Building Code making all-electric residential construction a mandate. Choice for homeowners to use natural gas as an option must be restored to ensure choice and resiliency. The attached submission reflects some of the reasons to repeal the all-electric mandate â€“ Why Target Homeowners When Much Better Solutions Exist_RKK_March 2020.

Alternative ways to reduce greenhouse gases are already available. Simply put, negative emissions mean reducing the amount of carbon by capturing it, extracting it from the environment and storing it in a safe place. This is commonly known as Carbon Capture and Storage (CC&S) and scientists have been investigating the process for many years.â€ It has become cost-effective.

Please repeal the all-electric mandate in the 2019 Building Code.

Thank you for your consideration,
â€¦.Rob

Additional submitted attachment is included below.

Why Target Homeowners When Much Better Solutions Exist?

"It's better to go too far than not far enough."
- Joseph Stalin (1878–1953)

Mandatory all-electric reach codes, and the larger 2019 California Building Code, is a punitive measure. Homeowners are being targeted to bear the brunt of the Golden State's aggressive climate policies, rooted in greenhouse gas reductions. This latest "Stalinistic" push is totally unnecessary, especially when there are better alternatives to reducing greenhouse gas emissions.

Homeowner Abuse is the Wrong Policy
Even so, homeowners continue to do their part. They've adopted recycling over the years. They've conserved water during droughts and many continue to limit their water use. Homeowners have replaced lawns with desert-like landscaping. They've adjusted to plastic bag bans and so much more.

As of January 1, 2020, homeowners are being financially pummeled by over-reaching all-electric reach codes and the added worry over falling property values to come. Stress levels are rising too [1]. When the state gets in the way of "life, liberty, and the pursuit of happiness," its citizens feel threatened.

Instead of becoming a victim and commiserating with other homeowners over what could *not* be done, I decided to regroup and look at other more productive solutions. Besides, I'm part of the 90 percent of Americans satisfied with their pre-Covid-19 lives, in spite of the State of California's poorly thought out and reactionary climate change policies [2].

There Is A Better Path Forward
"Why don't homeowners push back and ask the state to do something that helps all California residents?" Maybe our property, income, and sales taxes should be better invested in the present to better our future.

And numerous alternative solutions to forcing Zero Net Energy Buildings have emerged. Many of these alternatives have been ignored to date and could be implemented *tout de suite*.

Homeowners should *not* be forced to purchase all-electric homes.

Homeowners should *not* be compelled to spend at least $100,000 of their hard-earned dollars to upgrade their properties to all-electric in the not too distant future.

Homeowners should *not* have to give up their natural gas appliances.

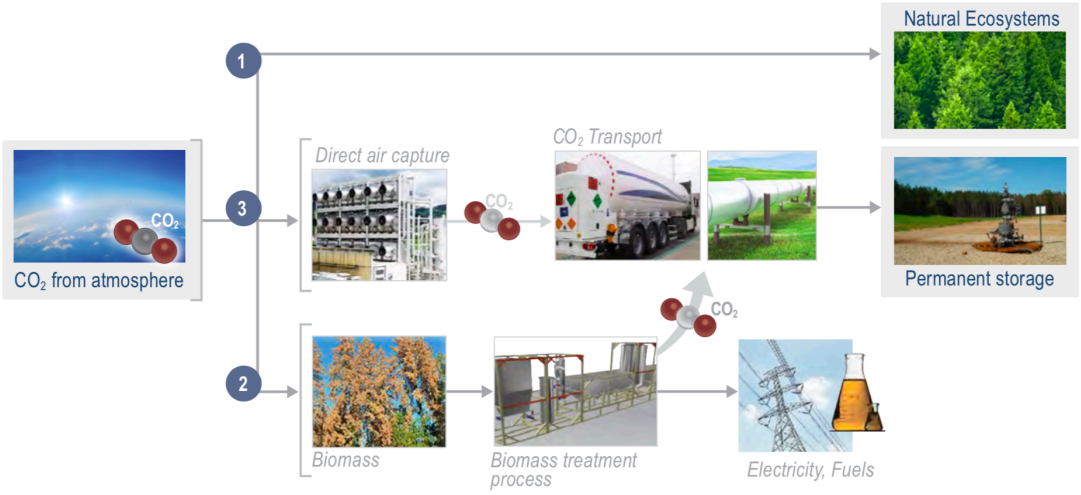
Alternatives abound. Let's list them and review one briefly.

1. Carbon Capture & Storage (CC&S) [3]
2. Ocean beaches acting as a carbon sink
3. Repurposing carbon dioxide and methane emissions for productive uses

4. Fixing California's methane leaks identified by NASA on behalf of the Golden State
5. Establish coastal desalination plants for drinking water
6. Increase more cost-efficient utility-scale renewable energy supplies beyond undersized rooftop solar PV
    a. Utility-scale wind farm growth
    b. Geothermal investment
    c. Fields of solar panels as a superior cost per electron performance
7. Utility-scale energy storage with automatic switchover when electric infrastructure fails or is forced offline (rotating blackouts or PSPSs)
8. Gravity assisted energy generation in tall buildings (large metro areas)
9. Motion assisted energy generation along busy highways
10. Wearables (clothing) energy generation for device charging

In this summary analysis, I'll focus on a practical alternative to all-electric reach codes and banning natural gas for homes and businesses. A key element of this alternative is a proven technique to capture carbon, removing it from the atmosphere.

Carbon Capture – Pulling Greenhouse Gases Out of the Atmosphere
The Lawrence Livermore National Laboratory (LLNL) has identified productive pathways to "create a negative emissions strategy that has three pillars: 1. Capture and store as much carbon as possible through better management of natural and working lands; 2. Convert waste biomass to fuels and store the carbon dioxide, and 3. Remove CO_2 directly from the air using purpose-built machines and store the CO_2."



Pathways for California to remove carbon dioxide (CO_2) from the atmosphere. Graphic courtesy LLNL, *Getting to Neutral*, Figure ES-2, January 2020.

These three solutions will provide the required greenhouse gas reductions without introducing oppressive and mandatory "all-electric" residential building codes and natural gas bans. Such building codes should be optional for all property owners and the carbon capture approach adopted instead. Up until January 1, 2020, selecting rooftop Solar PV was a homeowner choice, and should remain so. More than a million rooftops now feature amorphous silicon panels were added to the electric grid without government coercion.

As Anne Stark and her colleagues write in their comprehensive report, "By increasing the uptake of carbon in its natural and working lands, converting waste biomass into fuels, and removing CO_2 directly from the atmosphere with purpose-built machines, California can remove on the order of 125 million metric tons of CO_2 per year from the atmosphere by 2045, and achieve economy-wide net-zero emissions."

This approach is orders of magnitude better than a Zero Net Energy building mandate. Stark et al add, "California can achieve this amount of negative without buying offsets from outside the State. This approach addresses local emissions without the risk of leakage or off-shoring, so the overwhelming majority of the money is spent on local jobs and local industry."

A Carbon Capture Policy Must Replace Onerous Building Codes
On top of that, the price of new housing will remain lower, home values will not suffer, superior natural gas appliances can remain in operation, and another eight billion dollars of wealth leaving the state will be mitigated [4].

"These negative emissions pathways," according to the authors, "come with important co-benefits to air and water quality, resilience to a changing climate, and protection of life and property."

Part of this protection of life and property is rooted in better land management so that wildfires are not as fierce due to the accompanying major fuel load reductions.

Economically, the State of California "can achieve this goal at a cost of less than $10 billion per year, less than 0.4% of the State's current gross domestic product."

On a more practical and pragmatic perspective, the authors highlight, "The importance of achieving this level of negative emissions stretches far beyond California – the Golden State can demonstrate to the world that carbon neutrality is achievable."

I believe carbon capture and storage is a superior and preferable way to reduce greenhouse gas emissions. It's homeowner-friendly to implement. Such solutions are preferable to building codes that deny new home ownership to tens of thousands of young families and compel many other long-time residents to re-locate to other states where building codes (and housing prices) are not as oppressive.

Homeowners insist: *Amend* the all-electric reach code and *end* the push to ban natural gas.

"Climate change is an emergency. That's why I wrote the nation's most progressive climate law."
– Fran Pavley, retired California state senator

"Your filter is defective; it's not the end of the world . . . In 2019, CO_2 emissions were already flat to down, even without the 2019 building codes."
– Homeowners across California

[1] Fifty-six percent of Americans list climate change as one of their top stressors, just eight percentage points behind work (64%) and fifteen percentage points below mass shootings (71%). The American Psychological Association conducted their *Stress in America* survey during the fall of 2019. Is it any wonder Californian homeowners' stress levels have been amped up by intimidating reach codes. These over-reaching regulations mandate California building codes be amended to compel residential builders to *only* construct all-electric homes. Natural gas must be banned from new house construction, even though residential methane leaks are nothing but a blip on the list of greenhouse gas offenders.

[2] "Nine in 10 Americans are satisfied with the way things are going in their personal life, a new high in Gallup's four-decade trend. The latest figure bests the previous high of 88% recorded in 2003." Could the other 1 in 10 unsatisfied Americans be Californians upset over excessive regulations and policies that oppress its residents?
https://news.gallup.com/poll/284285/new-high-americans-satisfied-personal-life.aspx

[3] "Simply put, negative emissions mean reducing the amount of carbon by capturing it, extracting it from the environment and storing it in a safe place. This is commonly known as Carbon Capture and Storage (CC&S) and scientists have been investigating the process for many years." It has become cost-effective.
https://www.llnl.gov/news/new-lab-report-outlines-ways-california-could-reach-goal-becoming-carbon-neutral-2045

[4] In 2018, California witnessed wealth outflows (loss of Adjusted Gross Income) at the rate of eight billion dollars. This loss of wealth occurred, in part, because of high housing costs, taxation, and excessive regulation (like the latest 2019 building code). Not only is there a loss off $8 billion dollars, it's the departure of young workers and middle-income families, the people most vulnerable to regulation such as all-electric reach codes. Those leaving the State are buying their first-time and second homes outside of California.
https://www.wsj.com/articles/blue-state-redistribution-11578443075