

**DOCKETED**

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## **Parrow, Donna@Energy**

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**From:** John Lowry <[johnlowryca@gmail.com](mailto:johnlowryca@gmail.com)>  
**Sent:** Wednesday, June 13, 2018 9:58 AM  
**To:** Parrow, Donna@Energy  
**Subject:** zero net /all electric  
**Attachments:** Climate change v.6a.pdf

Good morning Ms Parrow,

I'm sending you a short paper that I've written on the solar mandate question. I'm not proposing that it should be repealed but that all electric homes be considered as an alternate method of compliance. There is widespread opposition to the solar mandate from energy experts, economists and even renewable energy advocates, and I am hopeful that an all electric alternative can be considered.

My career was in affordable housing, with almost 30 years at Burbank Housing in Santa Rosa. I am very concerned about adding more costs to housing, and I am a renewable energy advocate. I request that my comments be shared with Commissioner McAllister and kept in the record of commentary. I would very much appreciate the opportunity to talk with Commissioner McAllister or with a staff member at the Energy Commission.

Thank you, John Lowry, [johnlowryca@gmail.com](mailto:johnlowryca@gmail.com), 707-823-0634

# Climate Change Policy — Off in the Wrong Direction for Housing

John Lowry — February 2018

Several years ago I participated in a green building advisory committee for Santa Rosa. Its purpose was to consider additional local regulations beyond those already mandated by State building code. I was skeptical since new rules would likely add to the escalating costs of building housing. More energy efficient buildings, however, have lower operating costs. Additionally, the least costly way to reduce greenhouse gas emissions has been through conservation efforts, many of which could be inexpensive, particularly if included in the original design.

Since then, however, the State has added an array of other requirements, and in 2017 it began requiring south-facing roof space to accommodate solar collectors. In 2020 California plans to require new homes to meet a “zero net energy” standard, and housing will be required to install solar equipment.

It’s worth considering this policy direction in the context of what it costs to build a house. Between 2000 and 2016, for example, the cost of developing housing in Sonoma County increased by over 100% while incomes were up only 30%. There are multiple causes for this disparity; no single factor explains it all, but green building requirements are a factor, and zero net energy will push costs higher.

On the other hand, climate change and serious pollution are the result of producing and burning carbon fuels. Although now challenged by our own federal government, a concerted worldwide effort is underway to shift to renewable energy. Additionally, there is a consensus that California should play a leading role in promoting a renewable future.

The question is not whether we should take climate change seriously, but is instead: What is the most efficient, effective and fair way to accomplish our objective? We need to consider policies that would impose homemade electricity on those who may not have any interest in it. If homeowners choose to install a system, the likelihood that they will keep the collector surface clean, prune back tree cover and make sure that mechanical and electronic equipment functions correctly is probably pretty good. Imposed on a resident with little or no interest, proper maintenance would be less reliable.

From a wider perspective though, the zero net energy policy reflects a situation that existed a decade or more ago. At that time the potential of utility-scale wind and solar was not as obvious as it is today. And the technology that would allow us to move to all-electric building energy systems was not as advanced. As well, there was and continues to be a philosophical enthusiasm about getting off the grid and making our own electricity. Zero net energy would extend this policy direction by imposing homemade renewable energy production as a strategy to address climate change.

At the present time though, large scale wind and solar have reached a cost level similar to carbon fuel power generation, and a building boom in large-scale renewable energy production is underway. Additionally, more efficient methods of long distance transmission, which would allow surplus energy transfer to and from anywhere in North America, have been demonstrated.

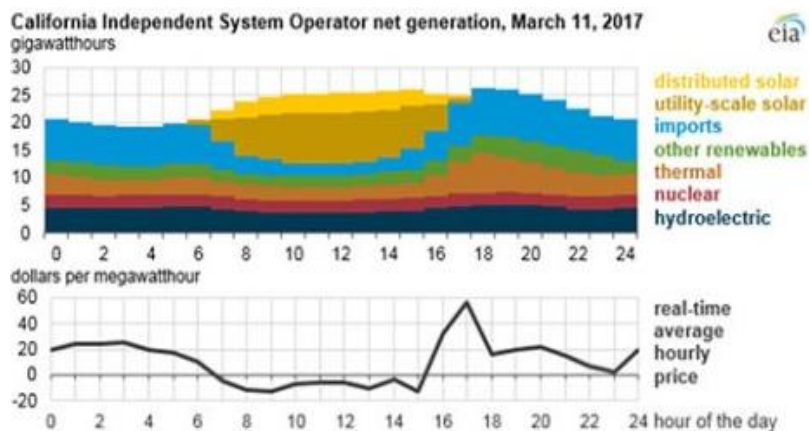


Current large-scale renewable technology could run the world, but wind and solar will need an energy storage and transmission infrastructure to reliably provide for our electric power needs.



The current trend toward utility-scale renewable power generation is likely to continue. No doubt small systems will continue to expand as well, and they both will contribute to our renewable future; however, the growth of renewable energy production is not dependent on the proliferation of rooftop systems.

The constraint for solar and wind is their variability. They do not produce electricity at a steady reliable rate because solar needs sunshine and wind needs wind. Technologies for energy storage and efficient long distance transmission do exist; however, these will need to be in place before solar and wind could actually become the mainstays of an entirely renewable energy system.



This "Duck Curve" chart demonstrates that solar power without sufficient storage has nearly reached capacity in California. We can't use much more solar power on sunny days, but at night, in cloudy weather and in the winter, our renewable capacity is insufficient. Expanded rooftop solar will not provide power when we need it.

This is not to say that people should be discouraged from producing their own electricity if they want to do so. But it is bad public policy to impose this responsibility and financial burden on those who choose not to operate their own systems, when large scale professionally managed systems can provide renewable power more efficiently and reliably. The misdirection of this policy becomes even greater with the understanding that solar power is not limited by the amount of collector space that could be built, but by the storage and transmission infrastructure it will require.

For housing, the most important thing we can do to address climate change is to move to all-electric energy systems. Since growing utility-scale renewable sources are capable of meeting household needs, there is no rationale for requiring another expensive addition to housing costs. All-electric homes have become possible because technologies, such as heat pumps, have advanced to the point that electric heating cost is comparable to natural gas.



Methane leaks  
A dirty little secret



We will not have a clean energy system until we eliminate the use of fossil carbon fuels.

A house that has a rooftop system and still uses natural gas or propane continues to be a source of carbon dioxide. As well, the production and storage of gas is a terribly polluting activity. We hear about natural gas leaks when a giant leak occurs, but small leaks are constant and widespread. Worse yet are the fracking chemicals that are pumped in the ground to squeeze out more natural gas without reliable understanding of their long-term effects.

Add to this the irony that if we are serious about a carbon free future, all gas systems will need to be torn out and replaced with electric power in the future. Why not do the job right the first time?

All-electric homes powered by increasing levels of renewable energy are the clean energy future. Our choice is policies that will hasten this future or miss the point by mandating that every homeowner and rental community go into the power generation business. No doubt many building owners and designers will choose to include on-site solar power generation, but given an overriding priority for carbon free energy systems, homes and most other all-electric buildings should be exempt from requirements for on-site energy production.

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