

Climate Change and Realignment

We have a fossil fuel addiction that is very unhealthy for the planet. Actually, it's more unhealthy for us than the planet itself. However, the idea that we can graft our fossil fuel lifestyles onto PVs, windmills, and batteries might work for California, but it's my engineering opinion that it's a strategy that just cannot scale up.

Now the connections between fossil fuel addiction and realignment may not be so obvious. Reducing greenhouse gas emissions from realignment activities isn't directly related to the CCPAB's mission and activities. Rather, this concern is more in the background, and pertains to all organizations, government, business, and civil.

So I'm just outlining a few key parameters, copied from my comments to supervisors when they heard the county's draft Climate Action Plan. I share these as a way of concisely sharing some of my conclusions, to keep in the back of our minds as we proceed.

1. About 25 years ago, I calculated that fossil fuel energy is very cheap. It takes about 100 hours for a healthy adult to generate, such as on a bicycle generator, the amount of energy available from a gallon of gasoline. Comparing the minimum wage to the price at the pump, that's a huge cost ratio, and very different than the conditions we were evolved to live in.

2. Fossil fuel energy is physical energy. Our physical needs are: clean air and water, healthy food, cooking, comfy shelter, and plenty of sleep and exercise. We would be wise to plan how to meet those needs without fossil fuels as soon as possible. That means substituting humanpower and manual tools for engines and motors as soon and as much as possible. Current mining and refining technologies for key metals and minerals (including those required for manufacturing PVs, windmills, and batteries) require fossil fuels for key processes:

<https://www.youtube.com/watch?v=TFyTSiCXWEE>

3. One strategy which I believe would be very effective in inducing substantial and speedy changes would be to require that all goods and services be priced in terms of embedded kwhr & GHG emissions, as well as in dollars. Economic theory posits that perfect consumer information leads to perfect markets and allocation. This kind of parallel-price market information would support consumers in making choices that would crowd climate-related externalities out of the monetary economy, in large part by making explicit the financial bias enjoyed by fossil fuels that is outlined in #1 above.

4. The sustainable discount rate is zero. At the species level, the future is as valuable as the past. Fossil fuels that are still in the ground are not stranded assets; they are assets whose real value is now negative but will be positive in a few centuries if we can figure out how to live within our means.

Muriel Strand, P.E.