[This is the eighth post in a series expressing my view of why California's actions on climate change are so important and how they will change the world.
The introductory post provides an overview and some general context.]

Under the Paris Agreement, countries agreed to hold the increase in the global average temperature to "well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels." Unfortunately, most climate scientists now agree that is impossible simply by reducing or even eliminating GHG emissions. The recent report of the Committee to Prevent Extreme Climate Change, Ramanathan, V., Molina, M.J., Zaelke, D, et al, sets out the problem succinctly. The amount of carbon in the atmosphere combined with what will be added as we reduce overall emissions will exceed the amount that would keep us at 2 degrees of warming or less.

So, we need to start working out how we can remove carbon. The technology already exists and is operating at small scale. Arizona State University and Lawrence Livermore Labs, among others, are working on the larger scale solutions. And, because carbon is a building block, captured carbon can be turned into products, including, somewhat ironically, fuels.

Carbon capture comes in different forms. I mentioned sequestration by soils. It turns out that adding compost to soil can improve carbon sequestration significantly, as Dr. Wendee Silver at UC Berkeley has shown. Carbon can be captured in the aggregate that is used to make cement. It is also sequestered in a natural process in the creation of limestone with magnesium oxide, for example.

As a climate change leader, California, with care, should further explore these and other possible avenues of CO2 capture. The possibilities are enticing and the need is increasing.

In these eight blog posts about California's actions, I have left many California actions and issues untouched. For example, ocean acidification is already impacting the west coast; California has one of the world's best functioning carbon markets, and it is generating funds to reduce emissions and help disadvantaged communities; and the clean freight program holds promise for action at ports around the US and beyond. But the idea here was to set out the very broad outlines of how California will achieve a 40% GHG emission reduction over the next 12 years.

Next, I will turn to some of the biggest barriers and some of the ways that California can increase its impact worldwide.

Next blog: Political Will

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