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Four years ago, when I was the head of the Attorney General's environment section, I wrote a series of guest blogs for Legal Planet focusing on practical and legal issues in moving from a carbon-based economy in California to one based on renewables. Now, from the vantage point of the Governor's Office, I want to offer an update.

In a spin of the words of Mayor Ed Koch, "How we doin?" The news is both good and bad. First the bad. The science hasn't changed, and time is growing short. News articles about climate change still quote climate deniers as apparently legitimate counterpoint to climate science. Congress still can't pass a viable energy policy, let alone anything that actually addresses climate change. Scientific data points to an increasing risk of moving beyond tipping points, such as an accelerated Greenland ice melt with rising seas, die-off from ocean acidification, or massive methane release from melting permafrost, among others. We lack the sense of emergency that meaningful response to climate change seems to demand. It is probably well worth discussing how we might change that dynamic, but I want to head in a different direction: progress and challenges in California.

Some good news. Four years ago, about 13 percent of California's electrical power came from renewables. That number is now well over 20 percent. Renewables growth has been so effective that it is becoming a victim of its success. Utilities have stopped entering into power purchase agreements for large-scale renewable projects because they believe that they have almost enough power under contract and development to meet the 33 percent requirement for 2020. This is becoming a problem for project developers. We need to encourage *more* than 33 percent by 2020, as well as the path to well beyond that percentage after 2020.

The renewables revolution has taken hold in all sectors, from rooftop to moderate-sized ground mounted to large scale. Four years ago, up front costs of roof-top solar posed a significant barrier for home-owners. Thanks to lease financing, that barrier has largely disappeared, and roof-top solar continues to grow. Meanwhile, ground-mounted systems in the one to twenty megawatt range have become prevalent, due in part to the PUC's reverse auction mechanism, which supports facilities of that size. A bill in the Legislature creating "community solar" projects could expand this portion of the market. For all segments of the solar market, steep price drops over the past four years have changed the economics.

I should also mention wind power, which, through improved turbine efficiency, continues to drive its costs down and provide a significant portion of renewable power in California.

Meanwhile, in the transportation sector, which is responsible for 40 percent of GHG emissions in the state, progress has been slower, but that is beginning to change. By the end of the year, we will have 50,000 plug-in vehicles on the road in California and a huge increase in charging stations and other infrastructure. At the same time, battery storage, both for vehicles and for home and business use are making real progress.

It is not all roses, and we have plenty of large hurdles, but we have made real, cognizable progress in four years. In the next set of blogs, I will talk about the state of climate science and how we communicate the issue, different roads to renewable futures, the role of demand response, how California is leading on electrifying transportation, how the data revolution can help us, California's path to the next milestones in 2030, and a few other topics.