EPA Hearings, Pittsburgh PA, 12 November 2015

http://www2.epa.gov/cleanpowerplan/forms/public-hearings-proposed-federal-plan-clean-power-plan
https://www.federalregister.gov/articles/2015/10/28/2015-27367/federal-plan-requirements-for-greenhouse-gas-emissions-from-electric-utility-generating-units

I'm Greg Kochanski; I like to think of myself as somewhere between a scientist and an engineer. I have a Ph.D. in physics from MIT, and I've taught at the University of Oxford. On the engineering side, I've worked at Bell Laboratories and Google.

I'm scared because I have three kids, who (with some luck) may be around until 2100. They'll see some climate nastiness in their old age, even under optimistic scenarios. And grandchildren? Well, that depends on whether our kids have them; my eldest daughter is a geophysicist and sometimes she takes a bleak view of our political will to control climate change.

Meanwhile, I do what I can as an individual. I walk to work; we have a hybrid car. I've insulated the attic, my electricity nominally comes from Texas wind farms, and I buy carbon offsets. It's not nearly enough.

Because I've been lucky enough to have a technical career, I can read the scientific papers and understand the mechanisms. It is grim and scary reading. As you know well, the literature is trustworthy; while there are some uncertainties where the science has not been nailed down, the overall picture is very clear. Specifically, to avoid serious trouble, we have a globally shared carbon budget that corresponds to roughly 30 years at our current rate of consumption.

Within 30 years or less, we need to rebuild our economy to be largely fossil-fuel free. We might have less time, if science discovers unexpected positive feedback mechanisms. And it's one year less since November 3, when China suddenly reported burning 10%-15% more coal[1].

People will tell you -- doubtless they have told you -- that 29 years is too short a time to rebuild our energy supplies. People will tell you that the economic life of a power plant is 30 to 50 years, so we must move slowly. Don't believe them.

The people who tell you that have grown up in a static industry. One where 10% of the power plants were built before I was born[2], and where efficiencies have increased by just a fewpercentage points since then. It's an industry that has seen little recent innovation. And,

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[1] http://www.nytimes.com/2015/11/04/world/asia/china-burns-much-more-coal-than-reported-complicating-climate-talks.html?_r=0

[2] http://www.sourcewatch.org/index.php/Existing_U.S._Coal_Plants, http://www.rmi.org/RFGraph-age_capacity_operating_US_coal_gas_generators.

now the industry is starting to be replaced: we're starting to get wind and solar power competing with those old fossil-fueled plants. They have a similar cost per megawatt-hour, and fewer strip mines, no carbon pollution, no fly ash, and no oil spills.

The people running the electric power industry are doubtless smart, people, but their experience hasn't prepared them for the changes in technology and economics that are happening.

I've seen a similar transition. When I started working for AT&T in 1987, telephones were very different from computers. Each phone call was carried over a dedicated circuit, and the circuit was expensive. But change was coming. Fiber optic cables would, over the next decade, make data transport unimaginably cheap. And, computers would become fast enough to economically process and switch phone calls. As a result, the industry changed rapidly and messily.

Between 1995 to 2002, my own company, Lucent Technologies, was run over by technological change. It couldn't adapt fast enough; it had too many people who expected incremental improvements. Lucent went from a stable, profitable company, to one that was losing money, shrinking, and about to be acquired in a fire sale.

But, despite the collapse of some of the major telecommunications companies, phones kept working. Despite the fact that some companies lost money, and that old technology was thrown away before it wore out, the new technologies drove incredible improvements that have now been picked up by over a billion people. Everyone has a smart phone now.

By analogy, we can't afford to have sympathy for the current players in the electric power industry. They are old technologies are about to be run over by the new. Some of the current companies may survive the change to renewables, but many of them won't be able to adapt rapidly enough.

The welfare of old power plants is not our primary concern. As long as we exercise a moderate amount of care, the free market will keep the lights on, and those old-technology coal and natural gas plants will be replaced with something cheaper and cleaner.

So, in conclusion, I applaud the EPA’s regulation of carbon pollution, but I think that we are not being aggressive enough. We need to stay below the global carbon budget and move fast, not at the slow pace that the electric power industry would like to see. We are growing a new industry out of new technologies, and our goal should be to shut down the old, dirty power generation industry as soon as practical. The new industry will grow to replace the old.