

The Technology Gap in the Climate Debate

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Solar energy technologies will require enormous advances to make a dent in emissions of greenhouse gases, many experts say. Pictured is Acciona's Nevada Solar One. (Isaac Brekken for The New York Times)

A commentary in this week's issue of the journal *Nature* adds to the chorus of economists, climate scientists and experts in energy policy saying that the major approaches to combating global warming are deeply flawed.

New talks over reviving the first climate treaty, the 1992 framework convention, and the Kyoto Protocol – a 1997 addendum that doesn't constrain the world's biggest gas emitters, the United States and China — remain focused on committing countries to limits on emissions, but not on advancing the technology needed to meet those limits, these critics say.

The Bush administration's parallel climate discussions with the world's "major economies" aim to nail down long-term "aspirational" goals for gas curbs and improve and disseminate clean energy technology. But the critics, including Jeffrey Sachs, the Columbia University economist, United Nations adviser and head of the school's Earth Institute, complain that money is not there to back up the rhetoric.

The report of the Intergovernmental Panel on Climate Change last year on options for mitigating emissions concluded that stabilization of greenhouse gases could be accomplished with known technologies, but the new paper contends that the panel's assumptions about technological innovation made a daunting challenge look far more doable than it really is.

“There is no question about whether technological innovation is necessary — it is,” the authors of the Nature paper said. “The question is, to what degree should policy focus directly on motivating such innovation? The I.P.C.C. plays a risky game in assuming that spontaneous advances in technological innovation will carry most of the burden of achieving future emissions reductions, rather than focusing on creating the conditions for such innovations to occur.”

The Nature commentary is by Roger A. Pielke, Jr., a political scientist at the University of Colorado, Tom Wigley, a climatologist at the National Center for Atmospheric Research, and Christopher Green, an economist at McGill University.

I'll be writing more on this for The Times in a few days. But I wanted to start a discussion here about the relative importance of forging legislation to cap and trade carbon, negotiating international agreements, or pursuing an energy-technology quest as a way of attacking the many energy-related issues confronting the planet in the next few decades, including climate.

A few perspectives have come in already. Dr. Sachs at Columbia made his position clear in a Scientific American commentary on energy and climate policy.

An excerpt:

Technology policy lies at the core of the climate change challenge. Even with a cutback in wasteful energy spending, our current technologies cannot support both a decline in carbon dioxide emissions and an expanding global economy. If we try to restrain emissions without a fundamentally new set of technologies, we will end up stifling economic growth, including the development prospects for billions of people. Economists often talk as though putting a price on carbon emissions through tradable permits or a carbon tax will be enough to deliver the needed reductions in those emissions. This is not true.

A bit more from Dr. Sachs:

[W]e will need much more than a price on carbon. Consider three potentially transformative low-emissions technologies: carbon capture and sequestration (CCS), plug-in hybrid automobiles and concentrated solar-thermal electricity generation. Each will require a combination of factors to succeed: more applied scientific research, important regulatory changes, appropriate infrastructure, public acceptance and early high-cost investments. A failure on one or more of these points could kill the technologies.

Adil Najam, a professor of public policy at Boston University and a lead author of the I.P.C.C. report on policy options, defended the panel's conclusions in an email, saying they “did not paint too rosy a picture” and also did not conflict with the views of Dr. Sachs or the commentary authors.

My view is that we are saying that you CAN do a tremendous lot with what available technology... Enough to make a real difference. It is true that this will not be enough to lick the problem, but it will be a very significant and probably necessary

difference. Let us not make the perfect the enemy of the good here. The need to make a real technology shift is very real. But let that not be an excuse not to do what we already can with existing technologies... Especially because doing the latter WILL make a difference.”

My worry about the some of these arguments is that they are still looking only for technology fixes ... These will be necessary, but not sufficient. Ultimately it WILL require lifestyle changes too. Not just WHAT we drive but how far we drive. Not just what appliances are in our house but WHERE our house is. That, I think, is an even bigger challenge than technology.

I'd love to have some input here from people working in the arena of climate and energy economics and policy, as well as other Dot Earth readers, ideally pointing to studies or examples illustrating the relative merit of markets, science, and personal behavior. Nature's news section has a great roundup of voices on the climate-energy technology question.

I'll post one example here pointing to the size of the challenge: The World Bank, India, and India's giant Tata Group — which owns both coal-burning utilities and the car company that launched the \$2,500 Nano sedan recently — are poised to begin investing in and building a suite of five 800-megawatt coal-burning power plants in the Indian state of Gujarat.

Even as the United States sees individual battles over siting new coal-burning plants, India and China are building them as fast as they can raise the money and find the cement and steel.

Environmental and globalization campaigners are not happy about this. Here is a summary of the issues surrounding the planned Indian power complex, by Daphne Wysham and Shakuntala Makhijani of the Institute for Policy Studies.

<http://www.fpif.org/fpif.txt/5110>