



6. INNOVATION: Seeking a 'global brain' to help speed clean energy projects (11/13/2009)

Evan Lehmann, E&E reporter

Say you're in danger. Would a whisper or a whistle attract more help?

Right now, the United States is seeking solutions to the "climate problem" in hushed tones, relying on identified experts in identified buildings to research energy technologies that might not be developed fast enough to prevent a painful mugging by the atmosphere.

That's what Lewis Milford contends in a [report](#) that suggests Washington should shake its windows open and ask the "global brain" for help to vastly accelerate the development of better and cheaper solar units, offshore wind turbines and carbon capture and sequestration efforts, to name a few.

"We don't have a lot of time to reduce emissions. And the way to reduce emissions is to scale up the technology we have and to create breakthroughs for new technology," said Milford, president of the Clean Energy Group, which he founded to hasten clean energy efforts, particularly on the state level.

And it needs to happen fast. The best way to do that, he says, is to ask for help -- from everyone. How to do that? With the Internet, of course.

Milford proposes that the U.S. Department of Energy and other agencies adopt a corporate concept called "distributed innovation," which the report says "refers to the process of linking together numerous people with disparate expertise working in different institutions and countries, but united together in a single effort focused on product development and deployment," according to the report, which was released this week.

Staying the course won't generate breakthroughs

The idea would reshape the notion that the path of developing, say, solar panels, must go from point A to point B and so on. Instead, experts from around the world, and a mix of disciplines, would work on researching the product, developing it, and making it commercially deployable all at once. That saves time, and it might save the climate, Milford says.

All of that is critical, the report says, because the current pace of establishing clean energy systems won't be able to stabilize carbon dioxide in the atmosphere at 550 parts per million, at which point the Intergovernmental Panel on Climate Change says dangerous climate impacts will occur.

"We thus must develop a carbon-free energy infrastructure in 50 years that is twice as large as our current energy infrastructure, which includes all power plants, vehicles, industries and buildings on the planet today," the report says.

"In short, then, solving the climate problem will require the fundamental transformation of the world's energy technology base over the next 50 years," it goes on to say. "To meet this massive challenge, we must not only accelerate the deployment of existing technologies, we must radically speed up the achievement of technological breakthroughs."

The report recommends establishing an "Accelerated Climate Technology Innovation Initiative," or ACT II, that would implement distributed innovation practices. The initiative would be run by a small team of planners, perhaps eight people, in an office that is as "independent as possible" from other energy institutions.

Using a corporate technique to push government-sponsored solutions

The office would be the center of a "hub and spoke" design, connecting experts in multiple fields, and nations, to race the research, development and deployment of clean energy technologies forward.

The office would tackle a pilot project first, perhaps working with its international research team to develop advanced photovoltaic technologies. The report, which was written with the help of the Meridian Institute, says the startup costs of ACT II would be \$30 million to \$50 million a year. Each additional "node," or technology pursued, would require between \$25 million and \$30 million annually.

"As much as 90 percent of this funding would be dedicated directly to [research, development and deployment]," the report says, noting that the initiative's public funding would be "multiplied many times" by leveraging private financing.

"The odd thing to us is that the private sector has been using these open and distributed innovation strategies for years to develop products as mundane as soap, or drugs, or figuring out how to rent DVDs, like Netflix," Milford said. "The government really needs to play catch up here and start applying these additional economy strategies to what really is the largest technological challenge we face."

The report also notes that cap and trade, the financial instrument favored by Congress to spark clean energy innovation, doesn't have enough gusto to get the job done quickly enough. Cap and trade should be complemented by distributed innovation practices, it says.

"In fact, carbon pricing, such as cap-and-trade systems, typically encourages the deployment of the cheapest existing low-carbon technologies and energy-efficiency measures (often called 'no regrets' policies)," the report says. "Such systems do not create incentives for investment in expensive breakthrough technologies."

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