JEFF RUCH: THE ENVIRONMENTAL WHISTLEBLOWER'S FRIEND

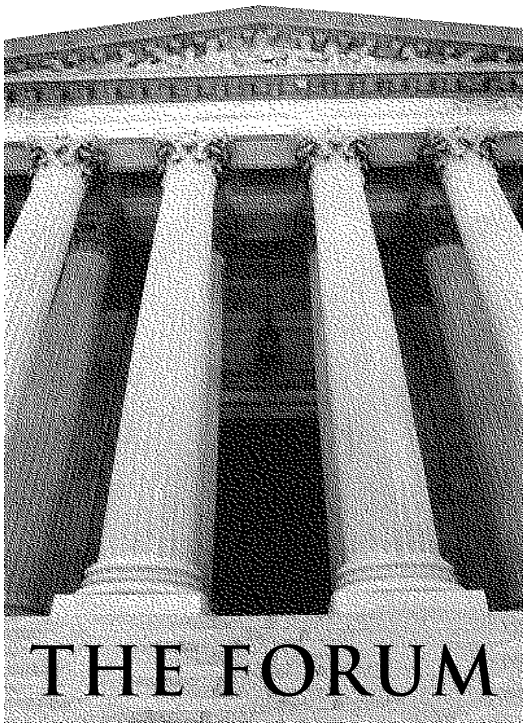
THE
Environmental Forum®
THE POLICY JOURNAL OF THE ENVIRONMENTAL LAW INSTITUTE©

VOLUME 20, NUMBER 1 JANUARY/FEBRUARY 2003

Conservative Bush Advisor Grades The President At Midterm

CLIMATE CHANGE: LONG-TERM SOLUTIONS MEAN COLLABORATION, NOT REGULATION

VENUE CHANGE: LOOKING OUTSIDE WASHINGTON FOR ENVIRONMENTAL PROGRESS



Where Will Progress Come From In The Next Two Years?

Implicit in this question is that it won't be coming from Washington, where environmental gridlock is likely to continue through yet another Congress. The Republicans may be in charge of both houses and the White House, but the balance is too close, particularly in the Senate, where it really takes a super-majority of 60 votes to get legislation through.

How long has it been? The amendments to the Clean Air Act passed in 1990 were the last major piece of environmental legislation passed by Congress, though there have been minor statutory measures and developments on the regulatory front, to be sure. Still, Superfund and the Endangered Species Act have awaited reform and the Clean Water Act and Resource Conservation and Recovery Act have awaited reauthorization for a more than a decade. And significant new legislative initiatives on energy efficiency and renewables, pollution prevention, exposure to toxics, protection of entire ecosystems, stopping sprawl, climate change? Don't ask.

But who says progress has to come from our political leaders in Washington. Not these folks on the opposite page.

Progress Happens, But What Kind?

DAVID REJESKI

Where is the progress, you ask? How about this: The performance of logic chips is doubling every 18 months (Moore's Law), bandwidth every 9-10 months, and the performance of the graphical processing units driving your adolescent's X-Box, every 5-6 months. The amount of useful genetic information doubles every 12-18 months (Monsanto's Law) and the value of expanding networks increases with the square of the number of network nodes (Metcalf's Law), be those nodes computers, automobiles, or cell phones. Two years is an eternity in Internet time. Over the past two years, we crossed the nanoscale divide (human-made objects are now smaller that the largest molecules created by nature) and we sequenced the human genome. If Moore's Law holds, many of us will be able to sequence our own genomes for less than $150 within the next few decades. Most individuals in the developed world are surrounded by scientific and technological progress that has little historical precedent in terms of rates of change and the social penetration.

Given this rapidly changing landscape, the environmental community has two choices: hop on the train of technological progress, maybe even help lay the new tracks, or clean up the train wrecks. Clearly, they cannot watch the caboose receding over the horizon. The problem is that the technology train is moving much faster than the capacity of most government entities to adapt, let alone shape outcomes. This realization caused the CIA, for instance, to set up a venture capital unit called In-Q-Tel to work directly with the private sector on new information and computer science applications. Essentially, The Agency hopped on the tech train. The environmental community needs to do the same, and more. They need to lay the tracks and build the next train station, keeping a sharp eye for other track building schemes and teams that might chew up the landscape and cause unintended environmental harm as the future unfolds.

To accomplish this, the focus must go far beyond what would traditionally be defined as "environmental technologies," to finding and optimizing the environmental opportunities inherent more generally in technological change. This will involve a shift to more generic, enabling technologies and their underlying science in key areas such as informatics, genetics, and materials, as well as efforts to shape the next generation of manufacturing and production technologies (both the hardware *and* software) at a global level.

Let's begin with some modest proposals for our government, since government seems to be perceived as applying the brakes to environmental progress. First, as a precautionary measure, $10 million per year should be allocated by Congress to support a joint National Science Foundation/Environmental Protection Agency program to examine the possible environmental consequences (intended and unintended) of emerging technologies, ranging from impacts of e-commerce to the health effects of nanoscale particles. Second, over the next five years, the budget of the Office of Research and Development at EPA should be realigned so that at least 30-40 percent of ORD's efforts are focused on shaping emerging technologies rather than supporting internal missions of the program offices. Essentially, ORD needs to move from mission support to mission control. High level functional partnerships need to be developed with laboratories (such as the MIT Media Lab) that are shaping the technological infrastructure that will in turn shape our markets, consumer choices, and information flows over the coming decades. Finally, an internal venture arm similar to the CIA's In-Q-Tel needs to be set up at EPA, funded with at least $30 million annually, and run by savvy techies with an intimate knowledge of how to mobilize capital and talent in the private sector.

The focus of these endeavors must be strategic: First, identifying and enabling technologies capable of providing factor 3-4 (not 3-4 percent, but 3-4 times the size of current levels) improvements in efficiency and cost over a 10-year period; and second, jump-starting innovative approaches that might eliminate certain environmental problems outright, such as shifts to

biological- or molecular-based production methods.

We have reached a point in our environmental history where discontinuous changes are needed, and such changes require transformation technologies and visionary leadership. The environmental consequences of growing population, consumption, and resource degradation will not bend to half-hearted, incrementalist strategies, let alone to the complete lack of long-term strategy dominating today's environmental dialogue.

But that is only half the story. The other half is just as compelling: Incrementalism seldom motivates human imagination or attracts talent. Frankly, in today's world, creative types have better places to invest their idealism, energy, and know-how than in tired public-sector institutions pursuing mediocre objectives. Because technology is only a means to an end, extracting the most from our technological future depends on extracting the most from human imagination. That is unlikely to happen until we are challenged with some bold, audacious environmental goals. George Bernard Shaw once observed that "progress depends on the unreasonable man [or woman]." If environmental progress has slowed, maybe it is because we have become too reasonable in our expectations and too comfortable with the old technological order to understand and shape the new.

David Rejeski is Director of the Foresight and Governance Project at the Woodrow Wilson International Center for Scholars in Washington, D.C.