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David G. Victor. Photo by Erik Jepsen/UC San Diego Publications

When Will We End Global Warming?

At the intersection of science, technology and policy, UC San Diego's David G. Victor offers answers

On the heels of the Trump administration's formal withdrawal of the United States from the Paris climate accord, more than 11,000 climate scientists signed a declaration calling climate change an "emergency" and urging for new ways to measure the effects of global warming.

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David G. Victor, professor of international relations at UC San Diego's School of Global Policy and Strategy was an academic reviewer of the declaration. Victor's work on this issue involving science, technology and policy has made him one of world's top experts on gauging the globe's progress on mitigating climate change, and what countries and industries need to do individually and collectively to save an increasingly warming world.

While the lack of leadership from the federal government mitigating climate change is cause for concern, progress on policy to reduce emissions has been made on many other fronts. However, humanity has never been in greater danger from the consequences of climate change than it is now, said Victor.

"You see climate change policy efforts almost everywhere you look," Victor said. "There are up to a dozen climate change policy conferences that occur every year now. You see it in the actions of companies, even big oil and gas has invested heavily in a range of new emission cutting strategies. Evidence of climate change policy is everywhere, except where it matters most: the data on the environment. Last year, emissions rose by almost 3 percent."

Developing solutions rooted-in-reality to make deep cuts in carbon emissions

Victor regularly shares his expertise on the imminent dangers of climate change with policymakers, NGOs, business leaders, journalists, intergovernmental agencies and others. However, much of his work is focused on providing pragmatic solutions for societies to transition to clean energy sources on a large scale. Victor co-leads UC San Diego's Deep Decarbonization Initiative with George R. Tynan of the Jacobs School of Engineering. The initiative, launched in 2016, is designed to help humanity avoid the worst consequences of climate change by reducing global carbon emission with the combined perspectives of the social sciences, engineering as well as physical and biological sciences.

In recognition of these efforts, Victor was selected as the inaugural holder of the Center for Global Transformation Endowed Chair in Innovation and Public Policy. The faculty chair, funded from a gift by Joan and Irwin Jacobs, will support Victor's teaching, research and service activities at the school. The

chair will allow the GPS Center for Global Transformation to recruit and retain outstanding faculty to participate in research that focuses on understanding and quantifying the consequences of global economic changes and technological growth.

“Joan and I are thrilled with the boundary-breaking work David Victor and the School of Global Policy and Strategy carry out across disciplines to address the critical challenges of our time,” said Irwin Jacobs. “Victor’s focus on helping the world cut emissions, given the very real technological, economic and political constraints that exist, is exactly the kind of research the world needs now.”

Jacobs added, “We can think of no better endeavor to support than helping societies link the best science and technology with politically realistic economic strategies for putting new energy systems into place.”

What will save us from climate change? Effective leadership

The sobering reality is that deep decarbonization requires a total transformation of existing energy systems. Unfortunately, those systems are likely to be much more expensive than existing energy systems, which is why it is unlikely that the climate change problem will solve itself through market forces on its own. Thus, Victor and collaborators are focusing on how business and government, working together, can overcome some of these hurdles and create new markets for low emission technologies. For example, an upcoming paper studies how new firms with zero-emission energy systems can secure the capital they need from investors to get off the ground. Many firms of this nature have been imagined, but are often perceived as an investment too risky to become a reality.

As Victor points out, while consensus, political gridlock and lack of international cooperation have acted as steadfast barriers to progress on cutting emissions, some places have been willing to lead and spend the capital necessary to yield global benefits, and understanding their behavior is key.

“The core challenge is that the places that are inspired to lead the most are almost intrinsically places that are a tiny fraction of the total world emissions,” Victor said. “So the game to play here is a leadership one: Everything we do to control emissions should be judged against the question of whether our leadership is generating followership. This is true especially at the global level. Companies, organizations and countries should measure progress, not in terms of goodwill, but whether it raises the odds of followership.”

Science meets science fiction—the future of climate change research

One of Victor’s growing areas of research interest may inspire Hollywood screenwriters—he has been exploring how governments could act in a possible third world war where the common enemy is increasingly volatile climate.

“You can get society to rally and act around a crisis,” Victor said. “While the dangers of climate change may feel abstract and far into the future for many of today’s policymakers, we have to look ahead to when the consequences could begin to happen on a large, irreversible scale.”

He added that major disasters which have a low probability now—such as Greenland melting or the entire Amazon forest incinerating—could force governments to address climate change as a true crisis. As if it were war.

“We could reverse climate change in a few decades on a war-time footing,” he said. “In a war, there is constant spending. Climate change has been a peripheral issue to most U.S. politics because the real dangers are not yet seen as existential to the society. That may be changing now.”

Victor says he still is optimistic over the long term, when it comes to the question of whether we will invent and apply new technologies needed to stop global warming. Meanwhile, we can still expect C02 and other gasses to continue to build up in our atmosphere and for much more warming to occur, which societies will have to manage.