

# A DIFFERENT PERSPECTIVE ON CLIMATE CHANGE INITIATIVES IN THE U.S.

*This article discusses the initiatives undertaken by different levels of the U.S. government and the private sector which, according to the author, holds the potential to change energy equations. After a brief analysis on the cap and trade measure, the author lists five factors which can limit the growth of green houses gases in the U.S.*

**William M. Arnold\***



\* William M. Arnold is Professor in the Practice of Energy Management at Jones Graduate School of Business, Rice University, Houston, Texas.

**T**he collapse of the Copenhagen summit was followed by the U.S. Senate's failure to pass a comprehensive energy legislation that included a cap-and-trade system. Many observers see this as a blow to reducing the growth of greenhouse gas emissions in the U.S. Such a view, however, may fail to consider a number of initiatives that are under way by federal, state, and local governments, and in the private sector. Beyond that, emerging technology could transform energy equations.

Cap-and-trade and other legislative measures were criticized in the U.S. on a number of grounds.

- The prospect of an increase in energy costs to U.S. consumers and industry during a severe recession was anathema to political leaders.
- The federal government would control vast new resources with only vague accountability.
- More industry might move to developing countries (the so-called "transfer risk").
- Scale: aside from hydro and nuclear, other forms of renewable/alternative energy now account for only about five percent of total U.S. energy supplies.
- The history of cap-and-trade in the EU was less than inspiring in terms of process and results.
- Domestic energy alternatives exist, but face challenges:

- Abundant coal, which fuels roughly 50 percent of U.S. electricity, contributes to energy security, domestic employment from West Virginia to Wyoming, and low costs for consumers. Carbon capture and storage (or sequestration) is undergoing field testing. It is seen as a way to maintain much of the country's traditional power generation infrastructure while reducing the carbon footprint. There are challenges to the economics of carbon capture and storage (CCS) and questions about the physical amount of storage capacity that would be required to have a meaningful impact.

- Nuclear energy was discussed actively during the last Presidential election. The recent decision not to open Yucca Mountain in Nevada for nuclear waste storage, the legacies of Three Mile Island and Chernobyl, the huge capital costs, and the very long approval process to site a new facility have set back the initiative. Many of the existing facilities, built some 50 years ago, will either be decommissioned or have to be re-permitted in the next few years.

- The application of new technology to open vast shale gas reserves from Texas to New York State helped drive natural gas prices down dramatically. With a lower CO<sub>2</sub> footprint than coal or oil, natural gas

is now seen as a transition fuel to an era in which renewables might account for a larger share of U.S. energy supply. Concerns about groundwater contamination and other challenges are being addressed by the industry.

- Wind energy had become increasingly competitive with some traditional forms of power generation and it benefits from state mandates. Limitations include its innate variability combined with the absence of a national high voltage grid. This is a vestige of a power infrastructure that was never intended to operate at a national level. Transmission will get serious attention in the near future.

Even without a global agreement or U.S. cap-and-trade legislation, a number of factors will combine to limit the growth of GHG emissions in the U.S., even assuming more robust economic growth.

**Federal:**

At the federal level the “Energy Independence and Security Act of 2007” increased standards for fleetwide gasoline mileage to 35 mpg (14.8 km/l) by 2020, provided incentives for plug-in hybrids, imposed a mandate of 36 billion gallons of ethanol by 2022 – but with a cap on ethanol from corn, and sought to promote energy efficiency.<sup>1</sup>

Also in 2007, the U.S. Supreme Court found in favor of Massachusetts and 11 other states that brought suit against the U.S. Environmental Protection Agency (EPA) to force them to regulate carbon dioxide and other greenhouse gases as pollutants. The EPA then designated greenhouse gases from sources including automobiles and power plants as a danger to public health, and among other measures, set new fuel economy rules for automobiles. This was challenged in Congress, but in June 2010 the U.S. Senate rejected, by a 53-47 vote, a proposal to override the EPA’s powers. Industry observers will watch how the EPA uses its new powers in the months ahead.

*“A number of factors will combine to limit the growth of GHG emissions in the U.S.”*

<sup>1</sup> United States Senate Committee on Energy and Natural Gas Resources, *Report*, [http://energy.senate.gov/public/\\_files/getdoc1.pdf](http://energy.senate.gov/public/_files/getdoc1.pdf)

**States:**

About half the states instituted renewable portfolio standards that have spurred development of renewable power in the utility sector. The Pew Center on Global Climate Change updates developments at the state and regional levels. Pew notes that in the last few months the Governors of Maine, Maryland, and Vermont signed new energy legislation and West Virginia implemented a truck idling law.<sup>2</sup>

**Regional:**

States are also working through regional initiatives.

The Western Climate Initiative partners developed a comprehensive strategy to address climate change.

The Regional Greenhouse Gas Initiative (RGGI) in New England has a cap-and-trade program covering fossil fuel power plants. However, it is narrowly structured and requires that offset projects occur within a RGGI state and focus on specific activities.

According to the American Institute for Contemporary German Studies “The New England Independent System Operator allows energy efficiency programs to be bid into its forward capacity market just as if they are power plants offering electricity to the market.”<sup>3</sup>

Pew reports that California, a long time leader in environmental policy, is working on improving fuel economy in the personal transport sector by requiring cars and light trucks to meet GHG standards, effectively requiring an improvement in fuel economy of vehicles. It is also integrating its cap-and-trade program with the Western Climate initiative.

Increasingly regional groups are working jointly on climate change issues such as carbon offsets. In effect, they are creating a ground-up “federalist approach” to energy policy.

However, states are not moving uniformly because their interests are diverse. I met recently with legislators from many states across the country.

---

<sup>2</sup> Pew Center on Global Climate Change, “U.S. States and Regions”, <http://www.pewclimate.org/states-regions>

<sup>3</sup> Joseph E. Aldy, Camilla Bausch, Michael Mehling, *AICGS Policy Report*, The John Hopkins University, <http://www.aicgs.org/documents/pubs/polrep35.pdf>

A state representative from Wyoming, which has vast coal resources, objected to the development of wind farms that provide energy principally to the West Coast. Many ranchers profit from the lease payments but other citizens object to sound and visual pollution that may impact wildlife.

A legislator from Washington State forcefully opposes nuclear energy because of contamination at the Hanford site, which has nine former nuclear reactors and 204,000 cubic meters of highly radioactive nuclear waste that dates back to the Manhattan Project.<sup>4</sup>

In several states initial enthusiasm over smart meters to promote energy efficiency and utility load management has given way to consumer skepticism as industry over-promised and under-performed.

Activity at the state level is getting international attention. *AICGS Policy Report* (No. 35) says the “lack of federal action does not represent a consensus view among the American public or their representatives at the state level... State level policies provide some guidance on how a federal program can be crafted... They can illustrate the effectiveness of various approaches in mitigating emissions and the associated costs.”<sup>5</sup>

*“With prudent regulation and incentives at all three levels of government, commitment from business and other institutions, and prospects for breakthrough technology, we may witness a permanent decline in emissions over the longer run.”*

### *Private Sector and Efficiency:*

While some sectors of the business community were fighting national energy legislation, many were getting their own houses in order. Major businesses are becoming greener – often focused on energy efficiency. They face peer pressure, shareholder initiatives, expectations of the younger workforce, and a longer term perspective on sustainability. Leading companies have adopted policies requiring that new facilities (or major remodeling) be designed to get LEED certification.

<sup>4</sup> Craig Welch, “Yucca Mountain out: Hanford Nuke waste has nowhere to go”, *Seattle Times*, 28 March 2010, [http://seattletimes.nwsourc.com/html/localnews/2011467984\\_yucca29m.html](http://seattletimes.nwsourc.com/html/localnews/2011467984_yucca29m.html)

<sup>5</sup> Joseph E. Aldy, Camilla Bausch, Michael Mehling, *AICGS Policy Report*, John Hopkins University, <http://www.aicgs.org/documents/pubs/polrep35.pdf>

Energy companies are working to highlight the benefits of efficiency. Chevron has funded an academic Chair on Energy Efficiency at the University of California - Davis.

One might expect universities to take a leadership role – and they do. Rice University recently completed two new residential colleges which providing housing, dining, and recreational facilities for students. Both have been awarded LEED certification.

### *Technology:*

The other major element in the equation is technology. There have been strong but largely incremental technological advances in virtually all forms of renewable energy. But transformative technology may not be far away. The stakes are so great that thousands of entrepreneurs are working to develop breakthrough advances in battery technology, waste to heat programs, second generation biofuels, efficiency, etc. The Rice Alliance for Entrepreneurship has an annual event at which emerging clean energy companies make presentations to investors and the media. Over the last few years, this has resulted directly in significant new investments. Additionally, The Rice Business Plan Competition, with annual prize money of more than one million dollars, is open to enterprising teams of students from around the world with ideas ranging from healthcare to energy and sustainable development.

Emissions may grow over the next few years as the economy recovers. But with prudent regulation and incentives at all three levels of government, commitment from business and other institutions, and prospects for breakthrough technology, we may witness a permanent decline in emissions over the longer run. It may not be as dramatic or disruptive as the proposed federal legislation would have created, but it may be more sustainable.