

## Putting science to work on climate change

by *The St. Louis Post-Dispatch*

Describing Energy Secretary Steven Chu's new job is simple: Oversee the transformation of the United States from a carbon-based economy to one based on clean energy.

Pulling it off, however, will be a little more challenging. It will be a massive undertaking, if it can be done at all — bigger than the Manhattan Project that split the atom and the Apollo program that put man on the moon. Combined.

"We essentially need a second industrial revolution that can generate lots of energy cleanly, cheaply, sustainably," Chu told *The Los Angeles Times* last week.

The good news is that, after eight years of painful national inaction on global climate change, the issue finally is getting the scientific star power and funding priority it urgently demands.

The bad news? Previous administrations already have spent an inflation-adjusted total of more than \$117 billion on clean energy research — more than the costs of creating the atom bomb and putting a man on the moon — with only limited success, so far.

Mr. Chu's second industrial revolution is about to get a tidal wave of new funding. The economic stimulus bill contains about \$40 billion in funding for research and capital improvements.

That's a staggering amount. The Energy Department's entire budget is just \$25 billion, most of which goes to maintaining the nuclear weapons stockpile and cleaning up former weapons plants.

Its total research budget now is about \$3 billion. The stimulus bill provides about \$2 billion just for research on advanced vehicle batteries.

Chu has said he wants to spend the stimulus funds quickly. But the Energy Department's track record there isn't good.

In 2005, Congress authorized billions in loan guarantees for low-emissions, advanced energy projects. But the Energy Department has yet to approve a single one, *The Wall Street Journal* reported last week. Companies

that have applied have been snowed under a blizzard of paperwork, while the energy projects they put forth have languished.

That's not an aberration. The Energy Department has missed so many deadlines to set energy efficiency standards for appliances that President Barack Obama recently was forced to order it to complete the task by August.

In his inaugural address, Obama promised to "restore science to its rightful place." He's made good so far.

Obama nominated Jane Lubchenco, a marine biologist, to head the National Oceanic and Atmospheric Administration.

He picked Harold Varmus, former director of the National Institutes of Health, and Eric Lander, from the Massachusetts Institute of Technology, to co-chair his council of advisors on science and technology.

Chu himself, is a Nobel Prize-winning physicist.

"We've never had a president surrounded in close proximity with so many well-known, top scientific minds," said Alan Leshner, chief executive of the American Association for the Advancement of Science.

It's going to take more than that to achieve the ambitious goals Chu outlined and Obama endorsed.

Achieving them won't be easy. But without the science, it's impossible.

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