



White rooftops may help slow warming

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By David A. Fahrenthold - *The Washington Post*

Washington — Could climate change be staved off by making the United States look like the set of “Mamma Mia!”?

That was suggested in a recent talk by Energy Secretary Steven Chu — although, because he was speaking to Nobel laureates, he did not mention the ABBA musical set in the Greek Islands. He said that global warming could be slowed by a low-tech idea that has nothing to do with coal plants or solar panels: white roofs.

Not always costlier, but harder to look at

To get all the benefits of a white roof, plain old white paint will not do. Instead, the roofs should be covered in a reflective coating, or a specially made membrane (Details about cool-roof products approved by the Environmental Protection Agency can be found at energystar.gov/index.cfm?croof—prods.pr—roof—products).

The result: White roofs are not always more expensive than dark ones. But they can be a lot harder on the eyes.

“It’s like being in Antarctica or the North Pole or something. I mean, you need to wear sunglasses,” said Albert Nunez, vice president of Capital Sun Group, an installer based in Cabin John, Md. When he pitches it to customers who have a slope-roofed house in the suburbs, he said, “The wife looks at it and says, ‘No, I couldn’t do that to Sally next door,’” Nunez said.

Making roofs white “changes the reflectivity ... of the Earth, so the sunlight comes in, it’s reflected back into space,” Chu said. “This is something very simple that we can do immediately,” he said later.

Chu has brought increased attention to an idea that — depending on your perspective — is either fairly new, or as old as Mediterranean villages, desert robes and Colonel Sanders’ summer suit. Climate scientists say that the reflective properties of the color white, if applied on enough of the world’s rooftops, might actually be a brake on global warming.



But if anybody is seriously considering a global whitewash, “simple” and “immediate” are probably not words that come to mind.

“I don’t think that it could ever be done at a sufficient scale,” said Ken Caldeira, a climate scientist at the Carnegie Institution in Stanford, Calif. He added: “It’s hard enough, in many of the cities of the world, to keep the streets swept, much less to keep the city reflective.”

White roofs work because of the physics of sunlight. Dark roofs absorb and hold more than 80 percent of solar energy, while white ones can reflect 75 percent of it away. That makes a white-roofed building cooler and cheaper to air-condition.

Because of that energy savings, California has since 2005 required most flat-roofed buildings to have white tops, and Wal-Mart has installed them on about 75 percent of its U.S. stores. In January, Washington D.C. will require new flat roofs on commercial buildings to be covered in vegetation or a reflective material.

Now, scientists are wondering whether white roofs might keep the world cooler, too.

The idea does not treat the root cause of climate change, which is heat-trapping pollution such as carbon dioxide and methane. But white roofs do help with the primary symptom: heat. The light they reflect escapes through the polluted atmosphere like a BB through a greenhouse.

“We may have to figure out a way to artificially cool the planet while the atmosphere is still super-saturated with greenhouse gases,” said Mike Tidwell of the Chesapeake Climate Action Network. This could be it, he said, “because the planet, it’s a closed system, it’s an absolutely closed system, except for one thing: sunlight.”