

Special ♦ Reprint ♦ Edition



As seen in



Life

June 1, 2006

# One family takes on carbon dioxide

## Grass-roots can-do makes dent in use of fossil fuels

By Tom Kenworthy  
USA TODAY

BOULDER, Colo. — In a time of global warming, Will Toor and family are leading by example.

Toor, 44, commutes most days by bicycle to his job as a Boulder County commissioner, and when he can't bike, he takes the bus for the short ride from his home.

He and his wife, Mariella Colvin, 43, own one car, a 13-year-old Honda Civic that gets 40 miles a gallon and is driven just 5,000 miles a year.

Their home, though built in 1928, is a model of energy efficiency.

They cut their electrical use by two-thirds by installing compact fluorescent light bulbs, buying an energy-efficient washing machine and refrigerator and retiring the clothes dryer in favor of an outdoor clothesline.

Toor and Colvin, an environmental activist who now is a stay-at-home mom, recently installed solar panels on their garage. The system is tied in to the grid and reduced their electric use in the first month to 25 kilowatts. The bill was \$2.50.

As part of a major remodeling project, they were able to cut their use of natural gas in half by using passive solar elements

such as insulating windows, putting extra insulation in the walls and under the roof and installing a heat-recovering ventilation system.

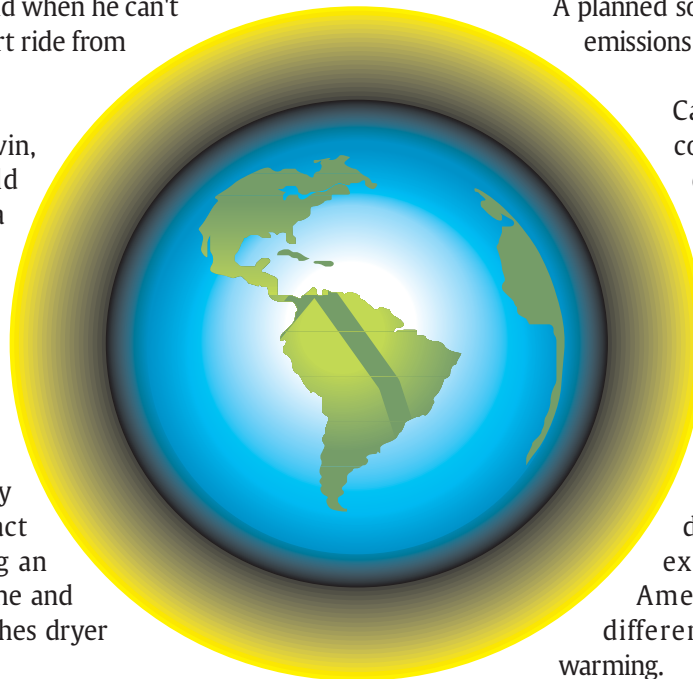
"We are probably at one-quarter the carbon emissions of the typical Colorado household," Toor says.

A planned solar hot-water system will reduce emissions even more.

Carbon dioxide from fossil-fuel combustion is 82% of the human contribution to the greenhouse gases in the atmosphere that capture energy from the sun, the Energy Department says. Scientists blame rising temperatures on increasing concentrations of these gases.

Toor and his family, which includes son Nicky, 8, and daughter Tera, 3, are doing what experts say must be done if Americans are going to make a difference in efforts to slow global warming.

If the USA were serious about combating warming, it would have to reduce carbon dioxide by about 80%, says David Hawkins, who heads the Natural Resources Defense Council's climate center. "It's not rocket science," Hawkins says. "The tools are in the toolbox. The challenge is to get them out of the toolbox and into people's hands."



AS SEEN IN USA TODAY'S LIFE SECTION, JUNE 1, 2006

Because electricity production and transportation account for about two-thirds of humans' carbon dioxide emissions, "the biggest things that need to happen are to make electricity differently and make vehicles that are much more efficient and use lower-carbon fuels," Hawkins says.

In that vision, Hawkins says, the USA would generate far more electricity from wind, solar and biofuels, and electric plants using conventional fossil fuels would capture carbon dioxide emissions. Cars would be made far more efficient by running on biomass, which the Energy Department defines as organic material used to produce energy.

But even without government and industry making broad changes, Toor is showing that individuals and families can make a significant difference on their own.

In a city known for environmental awareness, Toor fits right in. He has been the director of the University of Colorado's environmental center and served on the city council and as mayor before his election to the county

commission in 2005.

At the university and in elective office, Toor has pushed initiatives for recycling, mass transit, energy-efficient construction and reduction of carbon emissions.

Of all the changes he has made to his home and way of living, Toor says, "none of it has been a particularly big deal." Colvin concedes she sometimes has "to remind myself it would be better to bike than take the car" but calls it a minor problem.

Nor has it been particularly expensive, Toor and Colvin say. The 1.67-kilowatt solar system mounted on their garage roof had a net cost after tax credits and a rebate from their utility company of about \$1,000.

The new refrigerator and energy-efficient light bulbs cost another \$1,100.

They waited to do the energy-efficient retrofits to the house until a planned major remodeling that added a second story. "It was definitely an upfront expense, but it will save us money in the

long run," Colvin says.

Some people might say hanging laundry out to dry is an inconvenience, Toor says, but overall, the family's low-carbon lifestyle is no sacrifice.

"The house is more comfortable and has lower energy bills," Toor says. "Everything that we've done makes life more comfortable. We've made a decision to live close to where we work and where the kids are close to school.

"For us, it's all been really positive."

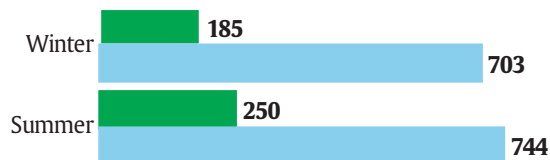
As Americans gnash their teeth and empty their wallets over the surge in gasoline prices, Toor merely shrugs. He buys only 120 gallons a year and says, "It's nice to feel like I'm not supporting the Exxon-Mobils of the world."

And, he says, there's the pleasure of going outside to look at his electrical meter as it runs backward on sunny days, a visible reminder he's pumping clean power into the grid, cutting greenhouse gas emissions and saving money.

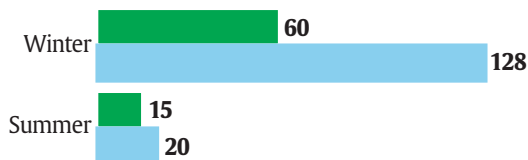
## Here's how energy-saving numbers stack up

■ Toor-Colvin family    ■ Average monthly use in Colorado in 2005<sup>1</sup>

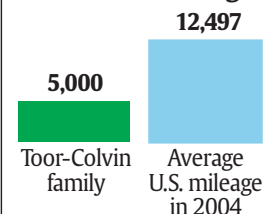
### Electricity use in kilowatts



### Natural gas use in therms



### Automobile mileage



<sup>1</sup> - Averages from July and December 2005

Sources: USA TODAY research by Tom Kenworthy and Susan O'Brian; Xcel Energy; Energy Information Agency

By Frank Pompa, USA TODAY

### One family takes on carbon dioxide

**APPLICATIONS:** cooperative learning, problem solving, analogy, environment

**DISCUSSION:** What steps has the Toor family taken to reduce the carbon emissions their household generates? How does carbon dioxide from fossil-fuel combustion cause global warming? According to David Hawkins, head of the Natural Resources Defense Council's climate center, what two changes are critical to combatting global warming? What kinds of electricity does the U.S. need to develop? What are the benefits of a low-carbon lifestyle?

**ACTIVITY:** Hawkins says that combatting global warming is "not rocket science. The tools are in the toolbox. The challenge is to get them out of the toolbox and into people's hands." In small groups, use the article and outside resources to identify at least three "tools" (e.g., solar panels, hybrid cars, etc.) that can help reduce global warming. Then, in the space below, explain how each of the tools you identified is similar to one of the tools pictured. (Think creatively.) Finally, explain how businesses, environmental groups, citizens and/or the government can get each tool out of the box and into citizens' hands.

**Vocabulary**

passive

combustion

biomass

organic

retrofits

upfront

gnash

### Global warming toolbox



First tool: \_\_\_\_\_

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How it is similar to a hammer:

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How to get the tool into people's hands:

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Second tool: \_\_\_\_\_



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How it is similar to a tape measure:

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How to get the tool into people's hands:

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Third tool: \_\_\_\_\_



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How it is similar to a saw:

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How to get the tool into people's hands:

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