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## Forests break green ground by selling offsets

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Evan Smith wrapped a forester's measuring tape around the trunk of Tree 10525, a towering Douglas fir, to figure out its diameter. Then he used a screwlike device to remove a thin wood sample from the trunk so he could measure its rings.

The bigger the fir, the more it would be worth to Smith.

But not as lumber - as carbon.

Tree 10525 is part of the Garcia River forest in Mendocino County, one of two privately owned California forests that have been recruited into the war against climate change as certified sources of carbon offsets.

Carbon offsets - which have become popular among environmentalists over the past several years - are voluntary payments made to initiatives that reduce the level of carbon dioxide and other greenhouse gases in the atmosphere.

Most U.S. offsets so far have supported technology-based projects such as solar power.

But California broke new ground this year by including forests as carbon reduction projects - with the result that forest owners can potentially earn some money not just by cutting timber but by leaving it standing.

Supporters say California's forest offset program could have long-term effects not only on the emerging marketplace for carbon credits but on the forestry industry and the future shape of California's landscape.

"This could create a new economics for forest landowners based on conserving resources," said Laurie Wayburn, executive director of the Pacific Forest Trust, which manages the Van Eck forest, the other of California's two certified offset forests.

Early buyers of California forest offsets have included high-profile politicians and businesses such as Gov. Arnold Schwarzenegger, House Speaker Nancy Pelosi, and Pacific Gas and Electric Co.

But skeptics question whether forests - with their perennial risk of wildfire - are a reliable way to

keep carbon out of the atmosphere. Some wonder whether the benefits of forest offsets could be more hype than reality.

"Carbon offset forests are kind of an iconic solution that gets a lot of press because trees are cool," said Bill Stewart, a forestry specialist at UC Extension School. "Yet it's so complicated, there's so much jargon, and in the end a shift to (energy-efficient) bulbs in casinos or shopping malls could dwarf their impact."

### **Registry develops standards**

The Garcia River forest is made up of 23,780 acres of redwoods, Douglas fir, tan oak and madrone hugging the coastal hills of Mendocino County between Boonville and Point Arena. The smaller Van Eck forest has 2,200 acres of old-growth redwoods in the far north of the state, near Arcata (Humboldt County).

Both were approved to sell carbon offsets in February by the California Climate Action Registry, a nonprofit set up by the state to develop reliable standards for reporting greenhouse gas emissions and reductions.

Before California's program, there had been pilot efforts at selling forest offsets in other parts of the world, such as in rain forests that are at risk of deforestation.

But these efforts often had loopholes. There was no way to be sure that trees planted today would still be standing in 10 years, or that landowners wouldn't increase logging elsewhere and cancel out the carbon saved through offsets.

California's standards introduced a new level of rigor and documentation that drew international attention.

"I recently gave a talk in Bali and got peppered with questions about our forestry protocols," said Andrea Tuttle, the state's former forestry director.

The California registry said that in order to sell offsets with its seal of approval, forest owners need to show several things:

- That their carbon storage is real and verifiable, through continuing surveys with tools such as those used by Smith on Tree 10525.
- That they'll commit to store that carbon for 100 years, by signing an easement pledging to keep their land in permanent forest use.
- That they will store more carbon than "business as usual" - so offset buyers won't end up paying for trees that would have been left standing anyway.

Regulators chose California's forestry rules as the baseline for determining "business as usual." So a forest owner who cuts 10,000 tons less timber than the maximum allowed by state rules could sell offsets for the amount of carbon contained in those 10,000 tons.

### **Logging very selectively**

Because the offset system is so new and complex, the first sellers were not typical private timber owners but environmental nonprofits.

The Garcia River forest was purchased four years ago by the Conservation Fund and the Nature Conservancy, with some financial help from the state. The Van Eck forest, meanwhile, is privately owned but managed by the Pacific Forest Trust.

Both Garcia River and Van Eck are working forests - meaning that, unlike a state or national park, they are being logged on a regular basis.

But their owners are logging very selectively, with an eye to preserving habitat for species such as spotted owls, Sonoma voles and coho salmon.

Both forests are now also being managed with a goal of increasing their carbon density over time. That means allowing trees to get bigger than usual before they are cut, or thinning out smaller trees so their neighbors can grow faster and larger.

"This is a fairly dense stand," said Smith, a Yale forestry school graduate who works for the Conservation Fund, as he strolled through redwoods in the Garcia River forest last month. "If we take out some of the trees, the growth rates will go up. ... A lot of trees grow fast, but redwoods store a heck of a lot more carbon on a given acre than almost any other species. They're taller, dense, more closely spaced."

Forest owners can still make a lot more money selling logs than selling carbon offsets, particularly if they have high-value wood like redwood. Smith estimated that 1,000 board feet of Garcia River timber would sell for about \$350 after logging costs, while those same trees would bring in about \$120 as carbon offsets.

But even that modest amount can make a financial difference to owners who are trying to log in a sustainable fashion. Offset backers say it can help counter the financial allure of converting forest land into suburbs, vineyards or other uses - one of the biggest current threats to California's forests.

"In the next decade, it will double our revenue," said Chris Kelly, California program director for the Conservation Fund. "It's a blessing. We are now able to supplement our modest revenues from selective harvesting with offset sales."

So far, Garcia River and Van Eck have contracted to sell more than 800,000 tons of offsets.

Schwarzenegger and Pelosi bought relatively small amounts in 2007 to offset emissions from some of their air travel. Other buyers have included carbon trading firms such as Natsource and CantorCO2e, a division of the financial services firm Cantor Fitzgerald.

### **Pg&e the major buyer**

The biggest single buyer so far has been PG&E - which contracted for 200,000 tons of Garcia River offsets over the next five years.

PG&E made its purchase as part of its ClimateSmart program, in which homeowners and businesses can choose to add a small fee to their monthly utility bill to counterbalance emissions from their gas and electricity usage.

Robert Parkhurst, PG&E's climate protection manager, said forest offsets are an easy-to-understand way for average citizens to contribute to reducing greenhouse gases.

"Anyone who has grown up in California has seen a tree ring - cross sections of a log," Parkhurst said. "On a very simplistic level, what we are buying are tree rings. We're buying years' worth of growth."

Some other emission-reduction advocates, however, have been less thrilled with forest offsets.

David Hales, president of the College of the Atlantic in Maine, considered and rejected tropical forest offsets when looking into how to offset his college's carbon footprint last year.

Hales cited concerns about the permanence of forest offsets, given the risk of wildfires and insect infestations. In fact, Garcia River lost some of the trees on 700 of its 23,780 acres in one of the fires that whipped across California this summer.

"An offset has got to be permanent, an emission that *never* occurs," Hales said. "And I've never seen a tree that is not going to die. If seven years from now, that tree you planted catches on fire, those emissions you claimed to offset are released into the atmosphere."

The owners of both Van Eck and Garcia River deal with such risks by holding some of their forests in reserve, so they can serve as replacement for any carbon lost to a natural disaster.

"People say forests are risky," said the Pacific Forest Trust's Wayburn. "Well, look at the technological options (for carbon dioxide reduction). Nuclear? Pretty risky. Wind turbines in the path of tornadoes? Risky. Here we have a technology that has been around all of human existence. There are risks, but the risk profile is less than other technologies."

## **Price, demand could grow**

So far the marketplace for carbon credits - as new and experimental as it is - has responded positively to California's offsets.

Neither Van Eck nor Garcia River's owners would disclose the actual price that buyers have paid for their offsets. But PG&E forecast that it would pay about \$9.71 per ton for its Garcia River offsets.

That's significantly more than the \$3 to \$4 per ton that buyers on the Chicago Climate Exchange are willing to pay for forest offsets from elsewhere.

"A California Climate Action Registry ton is the most sought after and has the highest value in the market at this point," said Sean Carney, a carbon market specialist with CantorCO2e.

Both the price and demand for forest offsets could grow as the United States takes steps to combat climate change. For instance, California is currently developing a "cap and trade" system that would limit greenhouse gas emissions by large businesses, while letting them buy credits for CO<sub>2</sub> reductions made by other entities.

Such a system - which might also be adopted by the federal government someday - would take demand for forest offsets to a whole new level.

But some private forest owners warn that the complexity of the state's offset rules will make it impossible for them to enter the market.

They are lobbying, among other things, to remove the requirement that forest owners sign a permanent conservation easement.

"We have members who are very interested but simply will not put a land-use restriction on their property in perpetuity," said Steve Brink, vice president of the California Forestry Association.

Over the next few months, state officials will have to reconcile two potentially conflicting goals for the forest offset program - broadening participation to include more forest lands, while also maintaining the program's integrity.

"California's forest protocols have been a fabulous success in setting a legitimate standard and forcing forests to be recognized as a part of climate mitigation," said Tuttle, the former forestry director. "There may be some places where changes can be made. But the value of a carbon credit is its legitimacy. If you blow its credibility, you blow its value."

## **What are carbon offsets?**

Carbon offsets are voluntary payments made by individuals or organizations to support projects

that reduce the level of greenhouse gases in the atmosphere.

Someone taking a plane flight to New York, for instance, might purchase offsets in a new solar power facility to compensate for the greenhouse gases generated by burning jet fuel during the flight.

Critics compare carbon offsets to the medieval practice of buying indulgences - a way to atone for one's environmental sins by writing a check rather than making tough lifestyle changes.

But supporters say offsets can be a useful last step for people who have already taken all feasible steps to reduce their energy use.

They also say that today's voluntary offset market is good practice for a future "cap and trade" system, where large industries will have to limit their greenhouse gas production but may buy the right to produce excess gases from other companies that are under their limit.

Offsets are measured in metric tons of carbon dioxide emissions.

### **How to buy forest offsets**

Individuals or businesses interested in buying carbon offsets in the Garcia River or Van Eck forests can go about it in a couple of ways:

-- Buy Garcia River offsets through PG&E's ClimateSmart program. See [www.pge.com/climatesmart](http://www.pge.com/climatesmart). PG&E lets customers offset the CO<sub>2</sub> emissions from their electricity and gas usage at a rate of about \$10 per ton of carbon dioxide emission reductions. An average residential customer would pay \$4 to \$5 per month to offset electricity and gas usage.

-- Buy Van Eck offsets through a company called Green Mountain Energy at [www.begreennow.com](http://www.begreennow.com). It charges \$19.95 for one metric ton of carbon dioxide emission reductions.

-- Both Garcia River and Van Eck offsets are also available for \$10 to \$15 per ton through a company called 3 Degrees, although they are not mentioned on the firm's Web site. See [www.3degreesinc.com](http://www.3degreesinc.com), or to specifically request offsets from Garcia River or Van Eck, call (866) 476-9378.

For more information on the science and economics of carbon offset forests, see [www.epa.gov/sequestration/index.html](http://www.epa.gov/sequestration/index.html) or [links.sfgate.com/ZETG](http://links.sfgate.com/ZETG).

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