

## GOVERNOR PLANS UNCHARTED PATH ON GLOBAL WARMING

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When Gov. Jim Douglas laid out his climate-change agenda last month, he stressed innovative but largely unproven ideas for turning Vermont's forests and green reputation into new sources of cash for state coffers and private pockets.

The administration portrayed these ideas -- selling carbon credits based on Vermont's open space and attracting businesses by creating a "Vermont green standard" for the carbon market -- as both visionary and essential to cover the substantial cost of reducing the state's carbon emissions.

"These things ain't free or inexpensive," Jason Gibbs, the governor's spokesman, said of carbon-cutting proposals. "If we do this right, we can create a new economic environment by bringing a substantial portion of the emerging, multibillion-dollar carbon credit industry to Vermont."

Critics pounced on the governor's announcement, accusing Douglas of avoiding new, immediate actions to reduce Vermont's contribution of carbon dioxide emissions blamed for global warming.

"This is fantasy. There is nobody out there eager to pay us for the fact we happen to have forests," said Bill McKibben of Ripton, an author and leader of the climate-change movement. "Call me old-fashioned, but I'd rather reduce the amount of carbon we emit."

In the days since the governor's Nov. 20 speech, the administration has made clearer that it intends to act on -- or launch research into -- many of the 38 emissions-reducing recommendations made recently by his Climate Change Commission.

Those proposals include additional investment in energy efficiency for homes and businesses, incentives to reduce car and truck emissions, and programs to reduce waste generation.

But the emphasis remains on fostering research at the state's universities and colleges

into the administration's ideas for finding new money, jobs and businesses in combating climate change.

While critics assail this approach, to many Vermonters on the sidelines of the climate debate, Douglas' proposals -- and the carbon market itself -- are simply unfamiliar.

Can the state's forests produce income in new ways while reducing the state's carbon footprint? What is the "Vermont green standard" the governor proposes, and how would it work? What are the realistic chances of success for the governor's strategy?

The Douglas administration is the first to say there are no full answers to those questions yet. But in interviews with researchers, advocates, national experts and the administration last week, the challenges and opportunities of the Douglas approach became clearer.

Here's a look at the three ideas at the heart of the governor's new climate change agenda:

### Homegrown carbon offsets

Vermont forests already produce fuel for the Burlington wood-fired electric generating plant, and for a growing number of wood boilers to heat public buildings. Thousands more tons of wood could be harvested for those uses.

But cellulosic ethanol could provide a whole new market for Vermont's farms and forests, the governor says.

He is talking about a car-and-truck fuel produced from the stalks, stems and woody fiber of plants -- a process that produces twice as much ethanol per acre as corn.

Agency of Natural Resources Secretary George Crombie is particularly enthusiastic about planting hardy, fast-growing switchgrass -- a leading candidate for making ethanol -- as a cash crop for Vermont farmers.

"Imagine if we could protect our waterways by planting buffer strips with switchgrass that farmers could harvest and sell," he said.

Is it feasible? Yes, said one leading expert, but the cellulosic market is still a number of years away, and it's not clear how much fuel Vermont could produce.

Groundbreaking research on cellulosic ethanol is under way at Dartmouth College, where engineering professor Lee Lynd and his colleagues are developing more cost-effective ways to turn biomass into ethanol.

Commercial plants may come online within five years, he wrote in an e-mail from South Africa, where he was traveling.

Such a plant could be located in Vermont, he said, "but likely only with strong state support, since other states are prepared to provide such support."

"We can surely produce some biofuels in Vermont," he added, but more research is needed to determine whether and how the most productive biofuel crops will thrive in northern New England.

### **More forest products**

Douglas also called for more tree-cutting in state forests, to provide logs for durable wood products such as construction timbers, building materials and furniture.

Turning a tree into a wood product keeps the carbon in the tree from returning to the atmosphere -- a form of carbon storage that offsets emissions from fuel-burning.

Douglas said he would direct the Agency of Natural Resources to increase harvesting on the state's 400,000 acres. Last year, loggers cut 3 million board feet and 2,900 cords of wood on about 900 acres of state land.

Forests Division head Steve Sinclair said his department has a backlog of timber sales it does not have the manpower to prepare for harvest.

"To ramp this up is going to take some resources," Sinclair said.

### **Vermont's 'Green Bank'**

While the governor's vision calls for greater harvest in Vermont forests, it also calls for keeping more of the forest intact to store carbon in the trunks and branches of trees.

The two goals are not mutually exclusive, forest experts say, but might be difficult to balance in the real world.

Forests help reduce the rate of global warming because plants pull carbon dioxide from the air and convert it into leaves and wood.

The carbon is locked up until the trees burn or decay.

In a world racing to slow the accumulation of carbon dioxide in the atmosphere, that ability to store carbon has acquired value in the international carbon credit market.

Some people and businesses make up for the carbon emissions they cause (usually from burning fossil fuels) by paying someone else to reduce or avoid such emissions. These are called carbon offsets or credits.

A Vermont-based company, Native Energy, for example, sells carbon offsets to the public, then uses the money to help fund renewable energy projects that emit no carbon -- wind farms, for example, or manure-to-energy ventures on dairy farms.

Carbon offsets can also pay for planting new forests. Because Vermont is so heavily forested, its money-making strategy must be somewhat different -- to manage its forests in ways that will increase carbon storage in standing woodlots.

### **The forest dilemma**

There are two big challenges: Figuring out how to grow a more carbon-rich forest, and then convincing carbon buyers that these are genuine offsets.

Researchers like Bill Keeton, a UVM forestry professor, are studying the first problem.

He theorizes that the greatest additional carbon storage is likely to come from cutting forests less frequently -- to grow the big trees holding the most carbon -- combined with periodic harvest for durable wood products and a limited careful harvest of low-grade wood for fuel. He is testing those theories at the school's research forests and is using computer simulation models to project the implications of forest carbon management strategies into future years.

With all the complexities of accounting for forest carbon, "a lot of folks are legitimately skeptical" that forest carbon management will produce marketable carbon offsets, Keeton said.

"It's a challenge," said Tom Boucher, president of Native Energy. His carbon offset company does not trade in forest projects. "There are concerns about how you quantify the amount of carbon storage, and how long the storage will last."

Buyers don't want to pay for carbon storage and then see that carbon released by forest fire or insect damage, he said. Then there's the problem of "leakage" -- no gain is made if a

landowner manages part of his forest for carbon storage, but increases tree-cutting on a neighboring parcel.

"Good luck -- selling offsets from forests is tough" because of verification problems, agreed Bill Burtis of Clean Air-Cool Planet, a New England group that promotes climate change solutions.

### **Tapping the carbon market**

While millions of dollars of carbon credits are being traded around the world, there is no single standard for what constitutes a valid, verifiable carbon offset, and there has been rising concern that some offsets are no more than mirages.

Douglas would like Vermont to create that standard, which he says would find wide acceptance because of the state's "green" reputation.

The green standard would generate substantial state revenue, he argues, if Vermont set up a framework for verifying carbon offsets and attracted businesses to carry out the work.

Douglas drew a parallel to Vermont's captive insurance laws, which have brought in dozens of businesses that pay more than \$20 million a year in taxes.

Deputy Natural Resources Secretary John Sayles said the "green standard" idea was the governor's own, vetted before it was announced with experts he declined to identify.

The proposal has been met with widespread but not universal skepticism.

"The argument that somehow people's love for pastoral Vermont is going to put us in the lead of the world's carbon banking system doesn't strike me as very hard-headed," McKibben said.

He and others pointed out that credible standards already exist, developed by climate exchanges in Europe, nonprofit groups and states. If there's any leader in this area, it is California, McKibben said.

But Doug Lantagne, dean of UVM Extension and the coordinator of UVM's research on the green standard, said "This is the exciting part for me."

Although there might be various standards, he said, "No one really is certifying the validity of carbon offsets. It would be good to be first."

"If he wants to set a standard, he's going in the right direction. It's the Wild West out there," agreed Roger Stephenson of Clean Air-Cool Planet.

"The notion of Vermont separately creating something is a bit of a challenge, given the work done by others who are writing standards," said Boucher, the Native Energy president. "I'm not saying it won't work, but it's a bit of a stretch."

Among the challenges: It's expected that some states, and perhaps the federal government, will mandate carbon reductions in coming years. If that happens, those governments are likely to set their own standards for what kind of projects qualify for carbon credits. Vermont's standards would need to be even tougher to make its "green" label attractive.

Sayles, the ANR deputy secretary, acknowledged that there "aren't a lot of answers to the questions yet," but said the idea will undergo intense development.

"I don't know when the first 'green stamp' will go on a carbon project ... I'd like to see it in the next couple years, but it's hard to say what roadblocks you'll run into," he said.

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