

## [Florida Trend](#)

# Swapping Carbon

## Florida businesses dabble in voluntary carbon-trading markets

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*With a mandatory cap-and-trade system for carbon emissions likely, some Florida businesses are looking for an edge — and profits — by trading in voluntary markets. But those markets, some say, are still in a “wild, wild west” stage.*

For half a century, the Gannon power plant near Tampa Bay burned coal to churn out the electricity that keeps lights burning and air conditioners humming in the Tampa Bay area. But by 1999, Gannon presented both a business and regulatory problem for its owner, Tampa Electric.

Tampa Electric wanted to expand its power generation. But Gannon was under EPA regulatory scrutiny for non-compliance with the federal Clean Air Act, stemming from the plant’s emissions of sulfur dioxide, nitrogen oxides and particulate matter. So the utility decided to spend \$700 million to shut down the coal burners and power Gannon with cleaner-burning natural gas.

As they retooled Gannon, Tampa Electric’s executives looked ahead to regulation they expected to come — rules aimed specifically at reducing carbon dioxide and other so-called greenhouse gases [See ["What Are Greenhouse Gases?"](#)].

To underscore how much they’d reduced emissions at Gannon, the utility began paying \$20,000 a year to participate in the Chicago Climate Exchange, a private, voluntary market known as CCX where public or private entities enter legally binding commitments to cut their emissions. If they exceed their goals, they receive credits — each representing a ton of carbon — that can be sold to other members who fail to meet their goals and must offset their excess emissions.

In joining the Chicago Exchange, Tampa Electric promised to reduce its emissions 6% by 2010. The utility surpassed that requirement easily: Refitting Gannon for natural gas cut the plant’s greenhouse gas emissions in half and reduced the company’s overall emissions by more than 20%.

Those reduced emissions at Gannon, they hoped, would sit well with regulators when newer rules arrived. Getting acknowledgement that the company had acted early "was one of our primary objectives," says Byron Burrows, manager of air programs for Tampa Electric.

Aside from whatever impression the move leaves with regulators, Tampa Electric’s participation in the voluntary carbon-trading market also gives the company experience in the kind of commerce that’s likely to emerge if the federal government mandates a national cap-and-trade system for carbon.

National or regional pollution credit-trading programs already exist for certain pollutants — those that generate acid rain, for example. Such systems attempt to use market forces to reduce overall pollution:

More efficient operations that can reduce their emissions cheaply get "credits" for making additional reductions that they can sell to older, less-efficient operations. Overall pollution falls without having to enforce the same level of reduction on every operation. Under a carbon cap-and-trade system, utilities, which generate more carbon than any other sector, likely would be limited to a set amount of carbon-related emissions. If they generate excess carbon, they will end up having to pay for it in some way — most likely by buying "offsets" or "credits" from other operations that have reduced their carbon emissions.

Since repowering Gannon, renamed Bayside Power Station, Tampa Electric has earned millions of carbon credits on the Chicago Exchange. While some members buy and sell credits, the utility is banking its credits, hoping to use them to offset its future emissions if a mandatory cap-and-trade system comes to pass.

That appears increasingly likely. The U.S. House of Representatives passed a version of national cap-and-trade this summer, part of the more than 1,200-page Waxman-Markey climate bill. At press time, the Senate was considering its own bill, sponsored by Sens. John Kerry and Barbara Boxer, that would require factories and utilities to cut emissions by about 20% from 2005 levels and about 80% by midcentury.

"Regardless of what you believe about global warming, the world is changing," says Ted Kury, director of energy studies at the University of Florida's Public Utility Research Center. "It's going to start costing people to emit carbon into the atmosphere, and that includes you — from your car, your flat screen television and your three computers."

Cap-and-trade has generated keen interest in Florida in part because of the state's vulnerability to climate-change impacts such as sea-level rise. So far, the economic activity here is confined to two groups: Companies like Tampa Electric that are voluntarily participating in carbon-trading markets, and the host of entrepreneurial consultants they're paying to teach them how to do it. Carbon trading "is one of the rare times when the public's interest lines up with making money," says Susan Glickman, a longtime lobbyist for Florida environmental organizations.

Among the consultants is Tampa-based Eco2AssetSolutions, a wholly owned subsidiary of Lykes Bros., the old Florida family company with big land and agricultural holdings. The company created Eco2 earlier this year to guide companies through the complicated lexicon of carbon trading. Eco2's services include "greenhouse gas quantification" — measuring how much carbon a company produces. It also does "carbon-asset management" — teaching a firm how to reduce carbon if it generates too much of it, or how to cash in if it's among the Florida companies, primarily large landholders, that are positioned to "sequester" carbon, or actually take it out of the atmosphere.

Sandra Kling, Eco2's chief environmental scientist, says there are many reasons for companies to join voluntary markets like the Chicago Exchange. They might want to gain experience in advance of federal action or just cut costs, for example. But the biggest reason most companies are joining so far, Kling says, is "public relations and branding."

For most companies, however, the public relations benefits are probably not worth the risks associated with jumping headfirst into carbon trading. Experts say the first peril is knowing whom to trust among the slew of consultants, lawyers, "aggregators" and some derisively nicknamed "carbon-baggers" that have come out of the woodwork to verify carbon credits and sell other services.

"It's buyer beware," says Scott A. Sager, a senior project manager at Environmental Services in Jacksonville, a consulting firm for forestry companies and other private landowners. "We've seen landowners sign on for 15- or 20-year contracts who would have gotten more money or a better deal if they had done more research."

Companies also run the risk of spending money to change their operations to offset carbon only to find they can't get enough from selling the credits to justify that cost. "Once you create these credits, you still have to market them" at a reasonable price, says Michael Wallandar, an attorney with Greenberg Traurig's carbon credits group.

By far the biggest problem at this stage is uncertainty, especially of carbon-credit prices. On the Chicago Exchange, credits have sold for as much as \$7 per metric ton, but this past summer prices never rose above 40 cents a ton. Most recently they've sold for about 20 cents a ton.

Earlier this year, Highlands County economic development officials and the University of Florida's Institute of Food and Agricultural Sciences hosted a carbon-credit workshop for farmers eager to learn how to sell carbon credits. The 75 who showed up got a lesson in how enormously complicated it is to figure out the carbon footprint of their operations. Exchanges like CCX require businesses that want to join to calculate everything from nitrogen input to every drop of diesel fuel they use — a process that's complex and expensive.

"When a carbon credit today is trading at no more than \$3, what good is all that?" asks Dan Murphy, executive director of the Highlands County Economic Development Commission. "Looking forward, if they are selling for over \$100 or \$150, that would be a different story."

At the Florida Farm Bureau, Andrew Walmsley, assistant director of agricultural policy, recommends to his members that they stay on the sidelines, at least until they've educated themselves thoroughly in the world of carbon. "The credits fluctuate so wildly, how do you plan as a businessperson?" Walmsley asks. "There is so much uncertainty in this that at this point, it's kind of like the wild, wild west."

For now, the carbon game is difficult to play, and the potential winnings are minimal. Some experts advise businesses just to stand pat until a government-mandated market forms.

"Everybody wants to believe that there's easy money out there, but there is no such thing," says Kury. "You really need to know what you're doing."

## Counting Carbon

64 ounces of juice  
= 1.7 kilograms of carbon

Measuring a company's "carbon footprint" is a complex effort that involves adding up how much carbon is generated by each aspect of its production process. Columbia Earth Institute worked with PepsiCo, owner of Tropicana orange juice, on evaluating the carbon footprint of a carton of orange juice. Ultimately, they calculated, producing 64 ounces of orange juice generates 1.7 kilograms of carbon. The illustration at right shows how the company broke down the impact of each aspect of production.

## What Are Greenhouse Gases?

Some greenhouse gases such as carbon dioxide both occur naturally and are generated by humans. Others, such as fluorinated gases, are emitted solely through human activities. To measure an industry's emissions, the amount of any of these greenhouse gases is converted into carbon dioxide equivalents (CO<sub>2</sub>e). Here's a look at those that enter the atmosphere through our activities:

**Carbon dioxide** (CO<sub>2</sub>) enters the atmosphere via the burning of fossil fuels (oil, natural gas and coal), solid waste, trees and wood products and also as a result of other chemical reactions such as the manufacture of cement. Carbon dioxide is also removed from the atmosphere (or "sequestered") when it is absorbed by plants as part of the biological carbon cycle.

**Methane** (CH<sub>4</sub>) is emitted during the production and transport of coal, natural gas and oil. It also is produced by cattle and other livestock and from the decay of organic waste in municipal solid waste landfills.

**Nitrous oxide** (NO<sub>2</sub>) is emitted during agricultural and industrial activities, as well as during combustion of fossil fuels and solid waste.

**Fluorinated gases** including hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride are synthetic, powerful greenhouse gases that are emitted from a variety of industrial processes.

— Source: U.S. Environmental Protection Agency

#### The Cap-and-Trade Discussion in a Nutshell

**FOR:** Supporters say cap-and-trade will wean the nation from its reliance on fossil fuels and spark investment in renewable energy. They say cap-and-trade is the most efficient way to charge for carbon because it is market-based. A coalition of big business voices called the U.S. Climate Action Partnership, including General Electric, Dow Chemical, Duke Energy and Shell Oil, is supporting national cap-and-trade, in part because the companies worry that if Congress doesn't act, the EPA will unilaterally impose regulation.

**AGAINST:** Opponents of cap-and-trade say the system will be hugely complex and subject to gaming and speculation. Companies that favor cap-and-trade are looking to exploit competitive advantages; for consumers and most businesses, a carbon-trading system will drive up costs and make America less competitive. Any emissions reductions will be canceled out by emissions in fast-growing India and China. Some favor a carbon tax as a simpler option; it would provide a more direct incentive to reduce pollution, proponents argue.

#### Government Carbon Traders

**TRASH TO CASH:** In Florida, the early players in the voluntary carbon markets include the New River Regional Landfill in rural northeast Florida, a joint project of Baker, Bradford and Union counties. New River is a bioreactor landfill, which means it uses liquid and air to speed up the decomposition of organic waste. The process creates an enormous amount of methane, a greenhouse gas 20 times more polluting than carbon dioxide.

Officials at New River, which burns off the methane, saw how selling carbon credits might help them turn their 65 acres of trash into cash. New River joined both Chicago Climate Exchange and the Climate Action Reserve, a California-based market. New River is working with Climate Action Reserve on future credits, which the governments that run the landfill hope will generate enough revenue to build a landfill

gas-to-energy system. The Chicago Climate Exchange, meanwhile, certified the landfill for about 200,000 credits — each represents one ton of carbon — for methane it already destroyed.

### **BUREAUCRATIC CARBON:**

Miami-Dade County got into carbon-trading in 2007, after County Commissioner Natacha Seijas convinced her fellow board members that the county should show leadership on climate change, given Miami's vulnerability to sea-level rise. The county signed on with the Chicago Climate Exchange, paying \$5,000 in annual dues (a lower fee for government; private companies report paying annual dues of \$20,000). Because the county failed to meet its target carbon reductions, it will pay another \$122,850 this fiscal year to offset some 70,000 tons of carbon.

The funds will come from departments that failed to meet their carbon-reduction goals. Seijas acknowledges the expense is painful during a budget crisis that has resulted in hundreds of worker layoffs. But she says the carbon market has provided the incentive that department directors needed to cut fuel and other expenses. For example, the county reduced fuel-related carbon emissions by 6,000 tons between 2007, when it joined the exchange, and 2008. The transit department slashed its unleaded fuel consumption by 71,000 gallons and its diesel use by 687,000, in part because of efficiency moves such as an anti-idling policy and in part because of the economic downturn.

"We can't always think about short-term savings," she says. "This is an investment being made in the future."

### The Impacts of a Cap-and-Trade System

**UTILITIES:** Ted Kury, director of energy studies at UF's Public Utility Research Center, says the big utility winners in a cap-and-trade future will be those who generate more of their power from nuclear, which runs with no carbon emissions. The losers: Those with the most coal.

Among the utilities likely to gain a competitive advantage from a cap-and-trade system is Florida Power & Light. FPL gets 64% of its power from natural gas, which has half the emissions of coal, and 25% from nuclear. As a result, FP&L's carbon dioxide emissions per megawatt hour are half the national average. "We think our customers are very well positioned relative to coal-based utilities," says spokesman Randy Clerihue.

Progress Energy, which is altering its energy mix, also could come out ahead. The company will decommission two older coal-burning units at Crystal River when it completes a new nuclear unit in Levy County. It is also installing scrubbers on two other coal-burning plants by 2010 and just finished repowering its Bartow plant in St. Petersburg from fuel oil to natural gas.

**CONSUMERS:** Most agree a cap-and-trade system will impose additional costs. Some believe consumers will negate increased energy prices, for example, by consuming less. Others like Barry Moline, executive director of the Florida Municipal Electric Association, the trade association for the state's municipally owned utility companies, believe that consumers will still pay more. His most optimistic scenario — assuming effective technologies to capture and store carbon emissions, abundant nuclear power and plenty of tree planting — sees an increase in power bills of about 7%. At the other end of the range of possibilities, consumers could pay as much as 134% more for electricity. That transfers into annual consumer household cost increases in 2012 of \$98 to \$315 and in 2030 of \$557 to \$1,788. Based on a DEP analysis, Moline says, "We ballpark it at a 25% increase."

Kury says a 134% increase "seems extreme," but a UF analysis for DEP on consumer costs won't be finished until spring. He estimates an average 10% increase for consumers, with the increase varying considerably depending on which utility serves the consumer.

Moline says municipal utilities favor a gradual approach to reducing carbon, phasing out coal plants over time and beefing up gas, nuclear and alternatives as we go. "Let's not go overboard. ... I think it's more important to take some action and control costs and evaluate it in five years and see how it's going than completely changing the rules and have big winners and big losers and having lots of unhappy customers, some spending more than others."

**LARGE LANDHOLDERS:** Large landholders such as Plum Creek Timber, the Seattle-based timber company that owns more Florida land than any other private entity, will likely come out ahead in a cap-and-trade system. Forestry companies may be able to manage their holdings to increase carbon absorption ("sequestration"), earning carbon credits that polluting companies need to buy. Plum Creek has joined the Chicago Climate Exchange, but a spokeswoman says it has no carbon projects in Florida at this time.

**SMALL BUSINESSES:** Cap-and-trade will create opportunities for smaller Florida companies whose work already captures carbon in some way. For example, wetlands, seagrass and algae all absorb carbon, so companies that work with those and other nature-based systems have the potential to sell credits. Orlando-based Ferrate Technologies is working in Louisiana on the largest wetlands restoration project in the world that is also a carbon-sequestration project. Executives with another Orlando company, AquaFiber Technologies, whose algae system removes phosphorous and nitrogen from lakes, envisions partnering with a utility or other business that needs to mitigate emissions. For every ton of phosphorous it removes, AquaFiber's process takes away 40 tons of carbon dioxide.

Devil in the Details

Should companies get credit for carbon-reducing activities they already conduct?

Any eventual carbon cap-and-trade system will have to address a myriad of issues: Who exactly will be subject to carbon limits? How will carbon output be measured? What will the caps be?

One important question involves what's called "additionality" — essentially, whether companies that are subject to caps should get credit for carbon-reducing activities they already conduct or whether they should have to do more. Case in point: Walter Energy, a coal mining and coke-making company that's become a carbon trader.

Coal mining releases methane gas that Walter must vent to the atmosphere to prevent underground explosions. For 20 years now, Walter has been "draining" the methane from coal seams in advance of mining and shipping the gas via pipeline to an electricity producer. Then came carbon trading. Walter joined the Chicago Climate Exchange, which has given the company credits for what it was already doing, diverting the methane from the atmosphere to power production. Walter racks up 1- to 1.5-million tons of credits a year over and above the credits it needs to reach its own emissions reduction goals for its mining and coke plants. Today, it sells them for the going rate of just 20 to 30 cents per ton, but when it first joined the exchange and credits sold for \$4 per ton, Walter pocketed a nice chunk of change "at virtually zero cost," says Rich Donnelly, vice president of engineering.

Walter, a winner now in a voluntary market, may not fare so well under a federal mandatory system. The Chicago Climate Exchange has a low bar for additionality. Other exchanges and the global Kyoto protocol have a higher standard. Donnelly says most of Walter's credits — the exceptions including

work it's doing with another company to capture and destroy methane at the mine source — wouldn't meet the test of additionality that other exchanges and Kyoto require for credits. Those types of credits trade for significantly higher prices than what Walter's getting for its credits now. "The potential for a considerable revenue source is there — or a considerable cost if you have to buy credits," Donnelly says. If the Waxman-Markey House bill passes as is, "I would think less than 10% (of Walter's credits now) would be valid."

Was This Trip Really Necessary?

*Florida mounted its own effort to constrain carbon. Will a federal law make it all moot?*

In a 2007 executive order, Gov. Charlie Crist set a goal for the state to reduce greenhouse gas emissions 20% by 2020 and 80% by 2050. His panel on climate change subsequently developed an exhaustive plan calculated to surpass the governor's goals, reduce the state's dependence on fossil fuels and help build a "green economy." To that end, the Legislature last year required the Florida Department of Environmental Protection to develop a statewide cap-and-trade program.

DEP is now in the middle of that job, which includes figuring out whether a state system should target all emitters, some of the biggest or just the biggest — which would mean power companies only.

Some experts involved in the research, including Ted Kury, director of energy studies at the UF's Public Utility Research Center, believe that the federal government, not the state, should tackle those decisions. The federal Waxman-Markey bill prohibits individual state schemes on capping carbon, meaning federal standards will trump whatever Florida may devise. The experts say Florida could better spend its money on energy-efficiency programs and investments in the most promising alternative fuel technologies.

DEP Secretary Michael Sole says the state's work is important regardless how the federal debate turns out. For example, part of the project analyzed the potential for carbon sequestration on state lands — a possible revenue-generator for the state. (The agency paid Lykes subsidiary Eco2 \$93,425 for that portion of the research. To the university researchers working on the cap-and-trade analysis, it is spending another \$144,000.)

Sole says when DEP's initial work is completed this spring, the agency will be able to show lawmakers and taxpayers specific data on how cap-and-trade will work in Florida, outlining both costs and benefits to businesses and taxpayers. "The low carbon future does exist, in the nation as well as the world," says Sole, "So it's important that we take a progressive stance."

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