



Local businesses apply simple but revolutionary technologies to clean our water and air

by [Matthew Schniper](#)

Thankfully, we can say it's becoming difficult to sort through the multitude of green-centric stories out there today. In the absence of world leaders making real change, individuals and small businesses by the reclaimed plastic boatload are pushing eco innovations to new and fairly exciting levels. Here's a look at just three Colorado-tied outfits whose products and services stand to make a significant change to our environment.

Subject: Clean Air Lawn Care, 650-5491, cleanairlawncare.com

The issue: According to Environmental Protection Agency data, a single gas lawn mower pollutes in one hour as much as a 1992 Ford Explorer driven 23,600 miles. Each summer weekend, more than 50 million Americans mow their lawns, using some 800 million gallons of gas per year and spilling another 17 million gallons. Conventional, chemical lawn treatments contribute to local pollution.

The resolution: Clean Air's electric lawn equipment emits 3,330 times fewer hydrocarbons, 5,000 times less carbon monoxide and one-fifth as much nitrogen oxide as a gas mower. (That's when charged on-grid. When solar-charged, all numbers are zeroed.) In 2009, the company says, it removed 75,283 pounds of air pollution nationwide while using only organic lawn care methods.

Because your old mower uses a two-stroke engine that lacks a catalytic converter, it's part of a problem contributing to between five or 10 percent of the country's air pollution. Congrats.

In response to this, Kelly Giard launched Fort Collins-based Clean Air Lawn Care (CALC) in 2006. The company has grown to 18 franchises nationwide, and this past October, *Entrepreneur Magazine* named Giard its Emerging Entrepreneur of 2009.

Local CALC franchise owner Steve Moll is entering his third year in business. Though he continues to run a construction company year-round for supplemental income, he's thus far been able to tend to around 40 regular clients with one helper; this year he plans to hire another hand with a goal of adding 20 more customers.

"Every year we continue to grow, and with that, we reduce the environmental impact the more we grow," says Moll, "where it's quite the opposite with most of businesses."

Moll likes being part of a green franchise, which enjoys benefits from eco-minded corporate partners. Black & Decker, for instance, provides prototypes for CALC to test and meets with franchise heads for feedback; ultimately, CALC helps drive innovation.

"When we started out, we had to take four mowers with us," says Moll. "Now, the newer equipment has removable batteries just like your handheld cordless tools. They listen to what we have to say."

To power equipment in the field, Moll's truck has a 120-watt solar panel mounted to a roof rack. A toolbox attached to the bed conceals two batteries, a charge controller and inverter. Any energy from the grid used to charge equipment overnight at Moll's shop (along with transportation and other business impact) is offset by CALC, which purchases credits from carbonfund.org.

But cynics can always find some cost left unbalanced, such as discarded batteries, or just ask the obvious question: Why have a thirsty lawn in the West at all?

Moll concedes that he does cycle through batteries every season and a half, "but the battery technology is improving every year," he says.

As for the well-worn grass argument, CALC has a corporate fact sheet at the ready, citing benefits such as soil stability and erosion control, air cooling and natural filtration of dust and pollutants. Besides, Americans just like their lawns, and most aren't going to Xeriscape anytime soon. So they might as well be as green as possible attending to them.

If not wishing to employ a lawn care company, now's a good time to retool your own garage: The EPA is expected to mandate new emissions standards in 2011 and 2012 to reduce hydrocarbon emissions from small spark-ignition engines by around 35 percent. Many companies now offer battery-operated or electric mowers in the \$350 range. Check ozoneaware.org for local rebate programs that reward trading in your clunker.

Subject: TASROP STW (Save The Water) Water Recycling System, 719/784-3712, tasrop.com

The issue: According to a 2004 EPA National Water Quality Inventory, 44 percent of assessed stream miles, 64 percent of assessed lake acres and 30 percent of assessed bay and estuarine square miles were not clean enough to support uses such as fishing and swimming. Culprits included atmospheric deposition (pollutants transferred from air to earth via rain, snow, etc.), agricultural runoff, hydrologic modifications and unknown sources.

The resolution: The STW sends contaminated water and chemical solutions through its filtration system, which captures aluminum, lead, zinc, chloride, arsenic and other heavy metals. It also recycles the solution so that it may be used again in a continuous loop, instead of being neutralized and disposed of. The STW can be placed in streams to clean water, as well as at a multitude of manufacturing plants such as processing outfits, plastics extrusion plants, auto body and transportation facilities and uranium-processing plants.

The way Florence-based TASROP owner Bob Miller tells it, he went to bed one night with a problem, and woke the next day with an idea for a gadget that he was able to build that same afternoon. "You can't believe how simple this thing is," he says of the three-tray filter and gravity-flow system over a holding tank connected to sump pumps.

Miller runs a powder coating shop (a place that colors metals), which in 2002 was experiencing an ever-growing pinch on both water and chemical costs. He wanted to somehow reuse both, and stumbled on a way to do just that — and more.

"It seems to do things it's just not supposed to do," he says. "How do you take out molecular-level heavy metals, totally dissolved solids, and not the chemicals you need? Nobody knows. But it's doing it."

Miller began saving roughly 98 percent of his chemicals and water, going from three, \$800 barrels a month down to a barrel and a half a year.

"We're gonna hurt chemical companies," he says, "and I'm proud of it."

That in mind, he says, folks have already tried to discredit him and tests done. One medical doctor questioned potential harmful bacteria buildup. After becoming convinced that the recirculating water doesn't allow stagnation, that doctor became an investor.

Other "magical things" Miller says the unit enables: desalinating water at previously unheard-of speeds and removing such oil and gas industry contaminants as cadmium without using any added chemicals or polymers (something he was told was impossible).

"The problem we're running into is not being able to convince people that it does what it does," he says. Never mind that the Colorado Department of Public Health and Environment gave him a Colorado Environmental Achievement Award in 2004.

Two Colorado Springs entities convinced enough by what they've seen are the World Arena and R.E. Monks Construction Company. R.E. Monks is in the process of having a system installed for use at its vehicle wash pad, and the World Arena plans to soon be recycling its ice-melting-pit water.

James Wieker, vice president of business development at STW, says an average-sized system runs around \$16,000, compared to other water reclamation systems that don't recycle the chemicals and cost \$60,000 or more. Annual filters run around \$2,000, but Wieker says a New Jersey bus company, for example, is saving \$2,000 a month in soap costs alone. All told, the STW can pay itself off in as little as two months to a year.

"We think it has the opportunity to change the world and how people use water," says Wieker. "In the manufacturing process, millions and billions of gallons of water are used every day in building things like bed frames and cars. When we reduce the water and chemical usage, it makes a great impact on the Earth. It transcends all fronts."

Subject: Fuel Eco Systems, 229-8280, fuelcosystems.com

The issue: According to the U.S. Department of Energy Efficiency and Renewable Energy, our vehicles release more than 1.7 billion tons of carbon dioxide annually. Each gallon of gas burned creates 20 pounds of carbon dioxide. (Visit fuelconomy.gov for a good explanation as to how this is possible.)

The resolution: The Eco System, a small unit installed on any internal combustion engine's fuel line between the fuel pump/filter and fuel injection system, breaks up hydrocarbon chains, causing vapor pressure to increase. In turn, fuel burns more completely in the combustion chamber, lowering greenhouse gas emissions, increasing power and torque, and improving fuel economy by 8 to 12 percent on average.

In the early '90s, it was called the Equalizer. It was a part developed by the race car industry as a fuel enhancer. In 1996, it was renamed the Fuel Eco System (FES) and was re-branded as a green product.

Ever since, some 70,000 written testimonials from happy customers have been gathered, according to Rich Prilliman, Austin, Texas-based FES warehouse distributor.

One might think with all that support — and a reference list that includes police and fire departments, utilities and trucking companies and several school district bus fleets, not to mention NASA's White Sands Test Facility (for its ground vehicles) — the Fuel Eco System would sell itself.

Not so, says David Van Dinter, Prilliman's Colorado Springs associate and distributor.

"They think it's snake oil," he says, referring to the many people, including local school districts and transportation departments who've failed to respond to his sales attempts.

"A lot of bad products out there have blemished good products," explains Prilliman, a former printer drawn into the business in 2004 by an FES associate for whom he produced a brochure. After his first 60 days — the system takes some time to clean deposits and reach maximum performance — he observed a 2.7 mile-per-gallon improvement in town and 5 mpg on the highway in his '95 Mitsubishi Eclipse.

Van Dinter's seen his '98 Volkswagen jump from 21 to 25 mpg, he says.

To counter the skeptics, FES offers a 90-day money-back guarantee, and highlights the product's 40-year life span and ability to be moved from vehicle to vehicle.

For entities like trucking companies, the unit can pay itself off within months. Average six- and eight-cylinder drivers can expect to spend \$250 and \$350 respectively for the FES, installed.

The company also sells a lifelong oil filter (for the DIY crowd or anyone with a willing mechanic) and biodegradable degreaser, both of which, in conjunction with the FES unit, can help make your old ride about as green as it'll get.

— matthew@csindy.com

[Cover Story archives](#)