

**JUDY DORSEY**  
Spearheaded  
the founding of  
Fort ZED, the  
world's largest  
zero-energy district

**SUNIL CHERIAN**  
Founder and CEO  
of Spirae Inc.,  
creator of smart-  
grid technology

The  
Smithsonian  
Museum  
has named  
Fort Collins  
the most  
fertile ground  
in the  
nation for  
great ideas.  
Why, and  
what it  
means for  
our future.

WHERE  
INNOVATION RULES

**BRYAN WILLSON**  
Founder of Envirofit,  
which makes clean-  
burning engines  
and cookstoves

**AMY PRIETO**  
Creator of a  
revolutionary  
long-lasting and  
nontoxic battery

**ED VANDYNE**  
Inventor of the  
VanDyne SuperTurbo  
engine, which works  
off of heat-waste



**BY SANDRA HUME**

PHOTO-ILLUSTRATION BY STEVE GLASS



# ONE WARM EVENING LAST SEPTEMBER,

in the Griffin Concert Hall at Colorado State University's University Center for the Arts, a performance unfolded that was distinctly Fort Collins. First up: the premiere public screening of the documentary *How a Place Matters: How Place Can Shape Innovation*, 26 minutes of exploration of the elements that have turned Fort Collins into a nexus for innovative ideas. Following the film was a live set from local indie band Post Paradise, whose music had been threaded through the film.

*How a Place Matters*, created by CSU videographer Joe Vasos for Rocky Mountain PBS, was inspired by Fort Collins' recognition from no less an authority than the Smithsonian National Museum of American History in Washington, D.C. As part of a new, multi-year exhibit that opened last

It starts with the late nineteenth century in Connecticut and ends in the present day in Colorado.

But it doesn't actually end. That's the significance of Fort Collins' designation. Joyce Bedi, senior historian with the Smithsonian's Lemelson Center, curated the Fort Collins segment of the exhibit. The goal was always to include one contemporary place. "We wanted to find somewhere that isn't quite cooked, where the end of the story isn't known," she says. They found it in Fort Collins: a hotbed of cross-disciplinary innovation and collaboration in the area of clean energy. From environmentally safe cookstoves for developing countries to revolutionary nontoxic batteries to a brewery powered in part by its own wastewater to one of the most recognized zero-energy districts in the world, Fort Collins is on the clean-energy map—and it's going to stay there.

**CERTAIN PLACES ACROSS THE GLOBE** are in the midst of an energy revolution, and Fort Collins is at the epicenter. It's fitting that Colorado State University is home to the Center for the New Energy Economy,

It's not simply that six places in the country earned a spot in this exhibit. It's six places in history. Fort Collins not only beat out other locations for this distinction, it beat out other locations across time. This is a multi-dimensional win.

summer, the museum's Lemelson Center for the Study of Invention and Innovation selected six locations as definitive American "Places of Invention." Fort Collins was one of them.

Of the others, included were Hartford, Connecticut, late-nineteenth century, for industrial mass production and precision engineering; Hollywood, California, 1930s, for the game-changing Technicolor in the "golden age" of film; Medical Alley, Minnesota, 1950s, for cardiac innovations like the invention of the pacemaker; Silicon Valley, 1970s, for personal computer development; the Bronx, New York City, 1970s, for the evolution of hip-hop.

And the sixth: Fort Collins, Colorado. Our claim to fame? Clean energy—its innovation, research, entrepreneurship, and implementation.

If this seems like a big deal, it's because it is. Let's start there.

It's not simply that six places in the country earned a spot in this exhibit. It's six places in history. Fort Collins not only beat out other locations for this distinction, it beat out other locations *across time*. This is a multi-dimensional win.

The case studies in "Places of Invention" span subjects, geography, and chronology, celebrating a mix of innovative stories across the last hundred-plus years in the United States.

which brings together comprehensive and interdisciplinary teams to help policymakers facilitate the country's transition to a clean energy economy. It makes sense that we're known for Fort ZED, an initiative to a net-zero energy district—where the annual energy used is equal to the energy created.

In a university-centric city like Fort Collins, the fact that Colorado State University is heavily represented only serves to underscore the symbiosis between the city and its researchers, innovators, and educators. All six Fort Collins energy innovators featured in "Places of Invention" have ties to CSU:

Bryan Willson is founder of the Engines and Energy Conversion Lab at CSU, professor of mechanical engineering, and a director of the CSU Energy Institute. His company Envirofit, founded initially to make snowmobile engines cleaner, ultimately built clean-burning cookstoves to sell in the developing world.

CSU associate professor of chemistry and Prieto Battery founder Amy Prieto created a revolutionary cop-polymer-based battery designed for longevity and to be non-toxic, even in its manufacturing.

Founder and CEO of Spirae Inc. Sunil Cheria's smart-grid technology



Local indie band Post Paradise provided the music that scored much of *How a Place Matters*, a documentary paying homage to Fort Collins' recognition by the Smithsonian as a place of innovation.

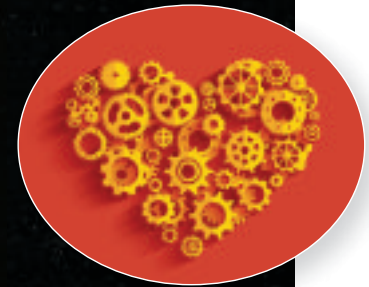
# 6 PLACES OF INNOVATION

...That have changed the world forever



**FORT COLLINS, COLORADO**

Here and now, for clean energy—its innovation, research, entrepreneurship and implementation



**MEDICAL ALLEY, MINNESOTA**

1950s, for cardiac innovations like the invention of the pacemaker



**SILICON VALLEY, CALIFORNIA**

1970s, for personal computer development



**HARTFORD, CONNECTICUT**

Late-nineteenth century, for industrial mass production and precision engineering

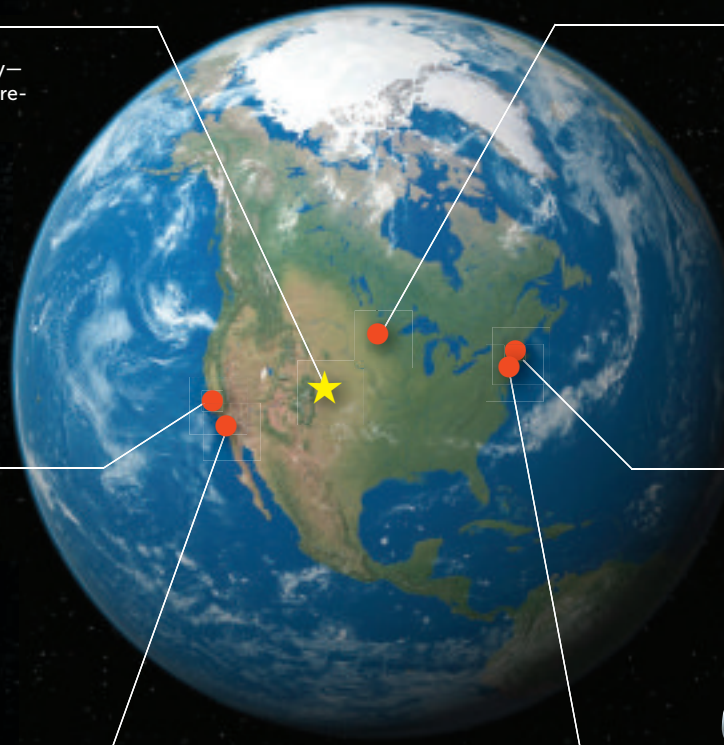


**HOLLYWOOD, CALIFORNIA**

1930s, for Technicolor in the "golden age" of film

**BRONX, NEW YORK CITY**

1970s, for the evolution of hip-hop



COURTESY PHOTOGRAPHS

contributed to Fort ZED. In the private sector now, Cherian previously taught at CSU, where he earned both his master's and Ph.D. in mechanical engineering. Spirae is a CSU spin-off company.

Ed VanDyne, whose VanDyne SuperTurbo engine technology works off waste-heat recovery, began testing the technology in Willson's Engine and Energy Conversion Lab at CSU in 2008.

The joint city-university initiative Fort ZED was spearheaded by Brendle Group founder Judy Dorsey, who earned her master's in mechanical engineering at CSU and serves on the dean's advisory council in the college of engineering.

Sustainable business pioneer New Belgium's co-founder Kim Jordan is a CSU alum and a key supporter of CSU's fermentation science degree.

For our city, clean energy is not simply a trend. What stood out to Bedi was not only Fort Collins' overall interest in environmental stewardship, but "the sense that 'we're in this for the long haul.'"

**HANG AROUND LONG ENOUGH IN FORT COLLINS**, and you'll hear the term "triple helix" bandied about. Coined in the 1990s, triple helix represents the idea that innovation stems from the intersection of university, industry, and government. In Fort Collins, clean energy is a goal shared by all three entities. And even though here it's par for the course, such shared thinking is rare.

An almost perfect representation of this is the Fort ZED energy district. It started, as many of the best ideas do, as a voluntary initiative. Together the city, the university, and area businesses joined forces using a mix of conservation, efficiency, and renewable energy sources to create and finance Fort ZED in Old Town.

That three-way collaborative attitude "is something we constantly work on," says Kristin Stephens, a Fort Collins city council member. Stephens also sits on the Futures Committee, tasked with long-range planning and exploring issues

## This collaborative and innovative spirit is a key piece of the equation setting FoCo apart. After all, our claim to fame as a town isn't nearly as simple as bikes, beers and bands—except it sort of is.

the city will face 10, 20, or 50 years out. While the Smithsonian's designation highlighted the uniqueness of this triple collaboration, it's all in a day's work in Fort Collins for Stephens. "It's up to municipalities to lead the way in innovation because we don't tend to see innovation or collaboration or civil



CSU professor Bryan Wilson's company, Envirofit, started off making two-stroke engines cleaner, eventually moving to create clean-burning cookstoves for the developing world.

discourse at the federal level," Stephens says. "We're left to reinvent the wheel at the local level, and we keep trying to look to the community and businesses and the university to try to come up with solutions."

Tom Milligan, CSU's vice president of external relations, conceived and co-wrote the script for *How a Place Matters*.

His colleagues around the country, he says, have been duly impressed with Fort Collins' designation, usually asking, How did you do that?

"And of course," Milligan says, "we didn't do anything. [The Smithsonian] came to us. And then once they see the exhibit or the documentary, they say, 'Wow, you got it goin' on.'"

Lee Anne Nance, interviewed in the documentary, visited Fort Collins early in her tenure at North Carolina's Research Triangle Cleantech Cluster. She cites the "spirit, energy, excitement, and innovation" of Fort Collins as something she wanted to emulate back home. "I actually said when I was there, 'I want us to grow up to be Fort Collins.'"

**THIS COLLABORATIVE AND INNOVATIVE SPIRIT** is a key piece of the equation that sets FoCo apart. After all, our claim to fame as a town isn't nearly as simple as bikes, beers, and bands—except it sort of is.

There are two stools in the Smithsonian exhibit that come directly from New Belgium's tasting room. Sitting in them, visitors can learn about how important informal gathering spots are to communities of innovators. "Invention typically doesn't happen on a nine-to-five schedule," Bedi told Colorado Public Radio. She remembers visiting Fort Collins and realizing that no matter where she was, everyone knew each other. "Either they worked on committees together or went to the same pub.... somehow, there were all these interconnections that really strengthened the belief in the work that was happening."

And while the work is creative, none of it is single-faceted. To that end, the film explores the question, how is it that a place becomes great at a particular thing? "You can't just worry about energy and become the energy place," Milligan muses. "It's about building creativity across all kinds of disciplines and lots of different ways of thinking about things." Running with the bikes-beers-bands idea for the film was "a sort of shorthand" for

that, he says, representing a culture that is innovative and fun and pragmatic all at once. Take New Belgium: It's the fourth-largest craft brewery in the country, but it's also a world leader in energy and sustainable business practices. Rather than simply having a sustainability department, sustainability is an ethos that runs through the company, says brewery co-founder Kim Jordan in the film. "It's everybody in the company's work to be thinking about how we can lessen our footprint on the planet."

"We have these seemingly fun elements, but in truth we're actually pretty good at making sure they're not just fun," Milligan says. "They're serious fun. People are saying 'Let's not just do it, let's do something better. Let's not be afraid to change the world.'"

But places of innovation don't come with a set recipe or list of ingredients—it's above and beyond that, or "alchemy rather than chemistry" as Peter Kageyama, author of *For the Love of Cities: The Love Affair Between People and Their Places*, says in the film. They do share characteristics and common philosophies, as Bedi found through her research. Like flexibility. Adaptability. Strong collaboration. Good communication. Openness to taking risks. And—perhaps most importantly—an absolute willingness to learn from failure. "Failure is such an intrinsic part of invention," she says. "To figure out why, and move on." In the film Dan Zimmerle of CSU's Electric Power Systems Laboratory talks about the "amplification effect" of simply trying things out. "Just that," he says, "makes a huge difference in what's possible."

As the documentary stresses, people cannot be separated from place. The people here understand collaboration. Our can-do attitude across the business, academic and government spheres

here—that triple-helix again—makes Fort Collins a town other places look to as a model. And it's what keeps all the new ideas here. Even people who have the talent and the freedom to leave choose not to, because the environment is so supportive. "If I had tried to do this in the Bay Area, I don't know that it would have gone as well," says Amy Prieto in the film about developing her revolutionary long-lasting, nontoxic battery. In Fort Collins she saw "a community around me to give advice and guidance and help in a way that I don't think I would have gotten many other places."

To Bryan Willson, founder of the Engines and Energy Conversion Lab at CSU as well as Envirofit, the company that supplies clean-energy cookstoves to the developing world, Fort Collins is all about local innovation with a global impact. Milligan concurs. "I don't think it's overstated," he says. "The city and the university leadership is absolutely about changing the world." **FC**



### SEE, WATCH, LEARN

**Watch the documentary.** *How a Place Matters*, which has been shown twice on Rocky Mountain PBS in addition to the public screening, is also available for viewing online on YouTube.

**Visit the exhibit.** Got a vacation to plan in the future? You've got five years to work in a trip to Washington, D.C., to witness for yourself Fort Collins' place in innovation history—and its future. *Places of Invention* is an ongoing exhibition at the Smithsonian Institution's Lemelson Center, and will be open to the public through at least 2020.

**Learn more online.** Visit the exhibit website at the Smithsonian: [invention.si.edu/explore/places-invention](http://invention.si.edu/explore/places-invention)