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# Popular Science lists CSU Engines and Energy Conversion Laboratory one of nation's top 25 academic laboratories

August 18, 2011

*Making a two-story, 2,300-horsepower engine more efficient and cleaner burning is just one of many cool study opportunities at Colorado State University's Engines and Energy Conversion Laboratory - one of Popular Science magazine's 25 Most Awesome College Labs for 2011.*

The Engines and Energy Conversion Laboratory, known as the EECL, is the only academic laboratory in Colorado in the magazine's September issue, now on newsstands. For the full story, visit the Popular Science [website](#).



## World leader in developing large-scale solutions to global energy problems

Based in the College of Engineering, the EECL is one of the nation's largest independent energy laboratories and a world leader in developing large-scale solutions to global energy problems, with particular emphasis on engine technology, smart electric grids, advanced biofuels and energy technology. The lab was founded in 1992 under the direction of Bryan Willson, a mechanical engineering professor who has been named to the "Scientific American 10" honor roll for innovations that benefit humanity.

"This is a great honor for the university but also a testament to the hard work of researchers, staff and students at the lab who make innovation part of their daily routine," said President Tony Frank. "More than 60 students work there regularly, many of them undergraduates who are working on projects ranging from improving the efficiency of natural gas compressor engines to building cleaner cookstoves for India, Peru and the rest of the developing world."

## 'Amazing, hands-on programs that are almost too much fun for credit'

Popular Science recognized the lab in 2010 in its list of top 30 "amazing, hands-on programs that are almost too much fun for credit."

In the 2011 issue, the magazine said, "At the EECL, students retrofit industrial engines that reach two stories in height. One of the largest is a two-stroke, 440-horsepower combustion engine, typically used to compress natural gas and push it through underground pipes. In the lab's 17 years, the technologies it has developed for this type of engine alone (including a now-ubiquitous fuel-injection system) have reduced nitrogen oxide emissions by an amount equivalent to taking 120 million modern cars off the highway."

Inside This Edition

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## Preparing students for the workforce through hands-on learning

A major goal of the laboratory is to prepare students for the workforce through hands-on learning. In addition to working on a wide array of projects on a daily basis, students on Friday participated in a 12-hour "1Mpac Challenge" to generate project ideas that, if commercialized at scale, would positively impact the lives of more than 1 million people. Students and faculty members were randomly assigned to teams and required to work with limited materials to come up with such projects as a device to turn kinetic energy into electricity.

"The event is geared toward helping our students, faculty and staff to remember and embrace our mission: to create innovative energy solutions and entrepreneurial models that benefit the human condition and achieve global impact," said Morgan DeFoort, co-director of the EECL.



## Other recent accomplishments at the EECL

- In June, Wired magazine singled out the EECL in its listing of Fort Collins as one of "The Emerging Epicenters" for innovation and high-tech job growth in green technology. Fort Collins-based companies VanDyne SuperTurbo and Woodward Inc. were recognized for their work with the lab to increase efficiency of their products.
- Colorado Gov. John Hickenlooper toured the lab in May as part of a major announcement on energy efficiency made by his office in collaboration with the Environmental Defense Fund and OPOWER. The governor's office chose the EECL for the announcement because of its reputation as one of the nation's premier energy laboratories and a leader in developing solutions to some of the world's most challenging environmental problems.
- Selected in April as one of 16 teams in North America by General Motors and the U.S. Department of Energy, students in the lab and at the university's Motorsports Engineering Research Center will spend the next three years reengineering the GM Chevrolet Malibu. The three-year collegiate competition, "EcoCAR 2: Plugging into the Future," will challenge teams to convert the Malibu into a hybrid/electric or fuel-cell vehicle to reduce its environmental impact without compromising performance, safety and consumer acceptability.
- Colorado State University and East China Normal University in Shanghai in June announced a Joint Research Institute for New Energy and the Environment that will capitalize on strengths of the two institutions to develop new energy solutions and help deal with the impact of energy on climate, air quality, land use and water resources. Willson is a co-director of the new institute.

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