

U-M Solar Car Team Guns for World Crown

The University of Michigan unveiled its solar car – named Generation – last week for the World Solar Challenge.

The event is an 1,800-mile, week-long endurance contest across the continent of Australia that takes place every other fall.

The U-M team has come in third place five times, most recently in 2011.

The university is the reigning national champion and school officials and students hope that Generation can carry them to their first world race victory this October.

“We spent a lot of time refining the design and we’re feeling really good about it,” said Eric Hausman, team project manager and senior in industrial and operations engineering.

The most significant rule change for 2013 is that cars must have four wheels instead of three. That, Hausman said, is the biggest shift since 2007, when the driver moved from lying down to seated. Both new requirements called for teams to essentially start from scratch and outline new vehicle shapes.

“So in ’07, you had to figure out where to put the driver in the air foil,” Hausman said. “This year, it’s similar. You have to figure out how to arrange the wheels and the driver in the new optimal position, and we think we’ve found that basic geometry.”

The component the team had the most leeway with wasn’t the wheels, but rather the driver’s seat – nicknamed the “butt bucket” by the team because that’s essentially what it is. In the old three-wheeled cars, the butt bucket was situated right behind the front wheel – encased in the same fairing, actually.

Under the new rules, the wheels can’t be right next to each other, so if the team were to

arrange them like wheels in a regular car, the bucket would hang down below the lower surface, reducing the car’s efficiency. So the team didn’t put it there.

“We have the driver and two wheels all in one giant fairing on the left side of the car, and on the right side, we have two small fairings – one for each wheel,” Hausman said.

“Aerodynamically, it’s about creating as few bumps on the surface as possible. The design also reduces shading of the solar cells by placing the canopy to the side.”

From the front, Generation is reminiscent of a motorcycle with a sidecar, but it’s not as lopsided as it looks, the students say. The team put most of the heavy equipment on what would be the passenger’s side to keep Generation’s center of gravity in its center – where it needs to be to keep the car stable.

“Having four wheels will change a lot of things about the way we race this car,” said Matt Goldstein, a senior in computer science and engineering who heads the team’s strategy division.

“This is a new concept to us and a different design, so we will have to adjust our strategy appropriately. The new regulations will definitely stir the pot and I am excited to make our best shot at a championship.”

The team has described its cars as “ultimate electric vehicles,” as they run off a battery charged by sunlight. While solar cars aren’t likely to be viable in the near future, there are other more immediate applications for the technologies the team develops, working in close collaboration with industry.

And the new rules, which also require that drivers sit slightly more upright and have a wider field of vision, make the 2013 vehicles a bit more like cars on the road today.

“We are very proud of this car,” said crew chief Bryan Mazor, a senior in physics who leads the team’s engineering division. “It is a very efficient, very aerodynamic design. We were also able to build faster than ever through the support of our sponsors. Now we’ll be able to test every facet of this car, in preparation for the World Solar Challenge.”

Major sponsors this year include General Motors, Ford, IMRA, the U-M College of Engineering, Qatar Airways and Siemens.

The World Solar Challenge is Oct. 6-13, 2013, from Darwin to Adelaide, Australia.

With more than 100 members from schools and colleges across



U-M students prepare “Generation” – their solar car – for competition.

the university, the U-M Solar Car Team is one of the largest student organizations on campus.

U-M’s team has finished first in the North American Solar Challenge seven times.

GM’s Milford Facility is Awarded LEED Certification

A nearly 37,000-square-foot facility at General Motors’ Milford Proving Ground is now certified by the U.S. Green Building Council’s Leadership in Energy and Environmental Design (LEED) program.

The facility, known as the proving ground’s administration building, is GM’s first brownfield site to earn the designation.

“The challenge of converting a brownfield site lies in working around existing infrastructure,” said Doug Ravas, senior manager, GM Global Facilities. “With a greenfield site, you’re operating on virgin ground, so you can shape it to your whim. A brownfield site conversion takes diligent planning and execution, which makes receiving LEED certification more fulfilling for the team.”

The project involved nearly a complete demolition of the existing facility, focusing on LEED sustainable design and construction guidelines as well as strict GM green construction protocol.

GM donated approximately 11 tons of material to Habitat for Hu-



Sustainable landscaping at GM’s Milford Proving Ground

manity, including carpet tile, ceiling

In total, it recycled more than 200 tons of construction material, including 128 tons of steel and 49 tons of concrete.

The Milford administration building joins three other LEED-certified facilities within GM: GM China Advanced Technical Center (Silver), GM China Headquarters (Gold) and Lansing’s Delta Township Assembly (Gold).

Worldwide, GM pursues green building design and construction practices on all projects.

Whether it constructs a new facility or upgrades existing ones, GM uses LEED design and engineering guidelines for resource efficiency, conservation and sustainable materials.

Milford Proving Ground is also certified as a Wildlife at Work site by the Wildlife Habitat Council, and houses a Solar Tracking Tree that provides 30,000 kilowatt hours of solar power annually.

For more information on GM’s environmental commitment, visit its sustainability report and environmental blog.

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