

Going for Gold: The Race for the Solar District Cup

Students from across the country competed in a new collegiate design competition that challenged teams to rethink real-world energy solutions while preparing to enter the solar workforce.

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Students from 26 schools competed in the virtual Solar District Cup competition. Image Courtesy of U.S. DOE



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What do college students and the solar industry have in common? Both have bright futures and endless avenues for growth, if given the right opportunity.

When it comes to the next generation of the solar energy workforce, the U.S. Department of Energy (DOE) recognizes there's often a gap between higher-level education and workforce experience. But short of handing out internships to the thousands of design, engineering, and finance students looking to grow their understanding of solar, there are few opportunities available to ensure students can hit the ground running to begin a career in renewable energy after graduation.

In 2017, the National Renewable Energy Laboratory (NREL) proposed a new collegiate-level student competition that challenges students to design and model optimized energy systems for a campus or urban district. The program would allow students to develop viable solutions to real-world energy problems, giving them the experience, industry contacts, and expertise they need to launch careers in the solar industry after graduation.

“With the Solar District Cup, we hoped to prepare hundreds of students for careers supporting the clean energy industry by tasking them to work on the multidisciplinary problem of designing systems for a campus or urban district,” said Joe Simon, a senior engineer and Solar District Cup organizer at NREL.

Not long after, the U.S. Department of Energy Solar District Cup Collegiate Design Competition was born.

Let the Games Begin

Funded by DOE and administered by NREL, the Solar District Cup officially launched in April 2019 to an overwhelmingly positive response from students, faculty, and industry. By the time the competition began in September 2019, 61 teams from 52 collegiate institutions had signed up to participate.

Soon after, the inaugural group of competitors, dubbed the Solar District Cup Class of 2020, got to work. Teams were assigned to one of three divisions, each of which had a district or campus for which students would design and model their energy systems. Each district use case was composed of existing mixed-use urban districts or campuses interested in pursuing increased distributed energy development.

The district use cases included Ball State University; a group of commercial buildings in Alexandria, Virginia, dubbed Crystal Parks; and New Mexico State University.

By December of 2019, the field was narrowed to 35 finalists, representing 32 collegiate institutions. Finalists were chosen after careful review of submitted Progress Deliverable Packages, which showed how their efforts had evolved since the program began.

For the next several months, teams were hard at work preparing for their final challenge: to compete against other teams in their division by presenting to a panel of industry judges, who would choose third-, second-, and first-place winners in each division.

As the final competition got closer, 26 teams submitted a deliverable package to showcase their final project results. On April 26, 2020, the competing teams finally got their chance to show their efforts in a live virtual conferencing event in front of their peers and industry judges.

Playing for the Cup

Students from 26 schools competed in the virtual competition against other teams in their division. Each team had 15 minutes to present their project to a panel of five industry expert judges, followed by a question-and-answer session. Even from a wide variety of locations around the country, students rose to the challenge and executed impressive presentations.

“Rising to the occasion, teams presented eloquently to judges, demonstrating true subject matter expertise on system design, financial modeling, and distribution system impact analysis,” said Sara Farrar, a senior project leader and competition organizer at NREL.

On April 27, the Office of Energy Efficiency and Renewable Energy’s Deputy Assistant Secretary of Renewable Power David Solan joined the Solar District Cup organizers to announce the first-, second-, and third-place winners in each division.

The first-place winners were as follows: Florida International University in the Ball State University division; Dartmouth College in the Crystal Parks division; and University of Cincinnati in the New Mexico State University division.

“The Solar District Cup is a great way to cultivate the next generation of the renewable energy workforce,” said Solan. “The U.S. Department of Energy applauds all the students in this year’s competition who designed innovative energy systems, and we look forward to seeing their ideas get implemented in communities across the country.”

But the competition wasn’t over yet. Later that day, the three first-place teams competed once again, giving 8-minute project story presentations to a public audience as they competed for the Industry Choice award.

In all, almost 200 supporters tuned in to the event to help select the Solar District Cup Industry Choice winner.

After voting concluded, SETO Director Dr. Becca Jones-Albertus announced that University of Cincinnati was selected as the Industry Choice winner.

“It was a surreal feeling winning the whole competition,” said Alex Rodrigues of the University of Cincinnati team. “When we started this project, we had no idea what we were getting into, and while we were proud of the work we had done, we never actually anticipated winning our division, let alone the Industry Choice award. It was a really great honor, seeing how strong the competition was.”

Looking Forward to Next Year’s Competition

After a successful inaugural year, the Solar District Cup launched a second round of competition. The collegiate challenge is now looking for students, faculty, and industry partners to participate in the Solar District Cup Class of 2021.

The 2021 program follows the same format, inspiring collegiate students to design and model optimized distributed energy systems for a campus or urban district. The Solar District Cup offers students the opportunity to gain real-world experience through a hands-on multidisciplinary project that connects them with valuable solar industry resources.

“This project really brought light to the various roles that are needed to develop a renewable energy project,” said Wyatt Ross, of the University of Cincinnati team. “From this experience,

we feel more prepared for a career addressing how buildings can become renewable energy assets.”

The deadline for 2021 applications is September 29, 2020. Learn more at www.energy.gov/solardistrictcup or follow the most recent updates at <http://www.herox.com/SolarDistrictCup>.

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