



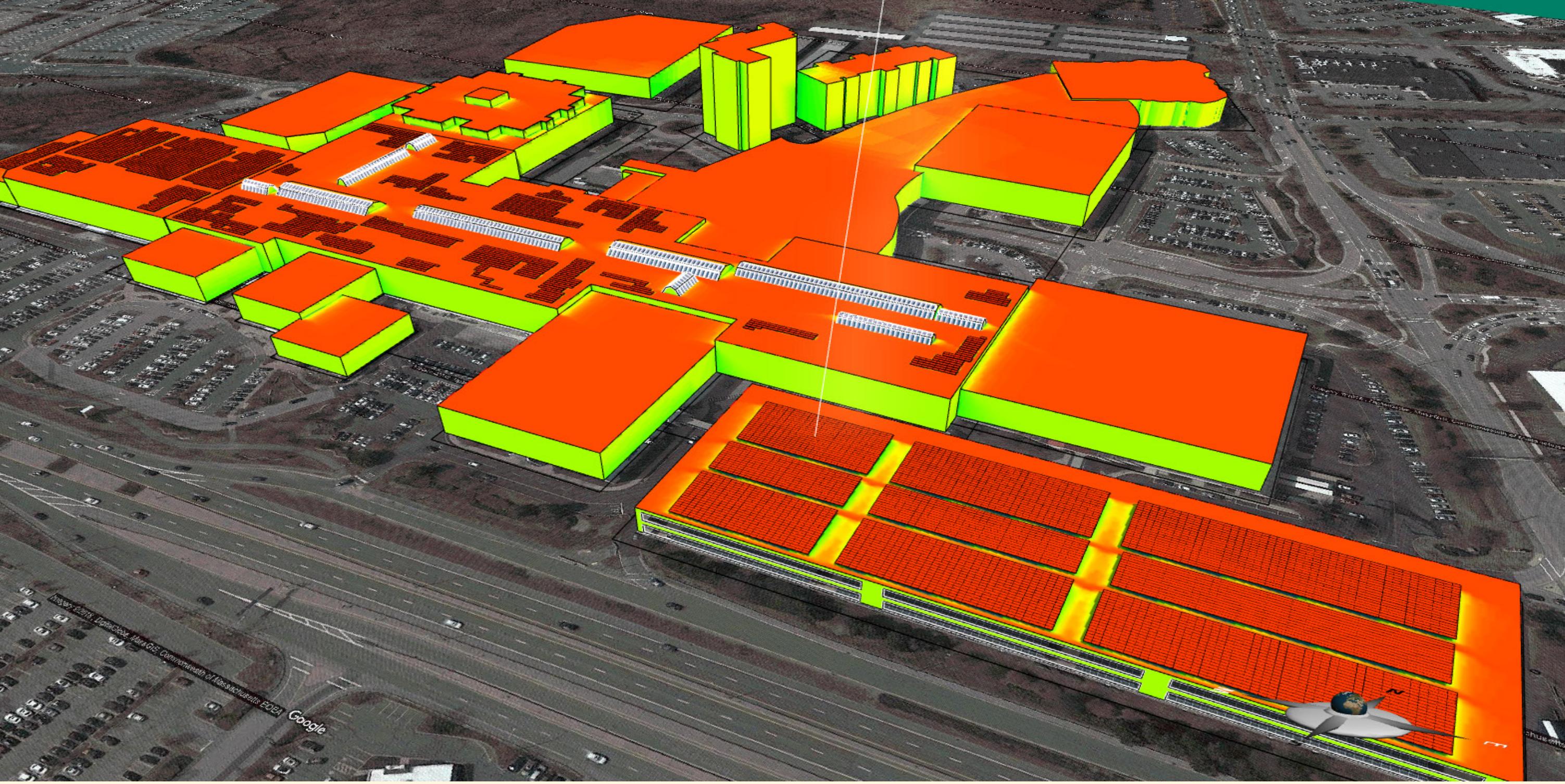
# Next Step Learning

Bridging Science Education and Cleantech Careers with Innovative Technologies

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This project provides students opportunities to think and work like scientists and engineers by equipping them with innovative technologies (e.g., infrared cameras and AI-enabled CAD software) to solve real-world problems and comprehensive curricula for learning knowledge and skills needed by cleantech employers. Two curricular systems bridge classroom learning and authentic applications: Building Science Investigation (BSI) and Solarize Your World (SYW). In BSI, students use IR cameras to conduct thermodynamics experiments in the classroom and then apply the knowledge to inspect their home or school buildings. In SYW, students use Energy3D to design solar power solutions for homes, schools, stores, utilities, and so on. At the end, students communicate their findings and ideas with property owners and other stakeholders.

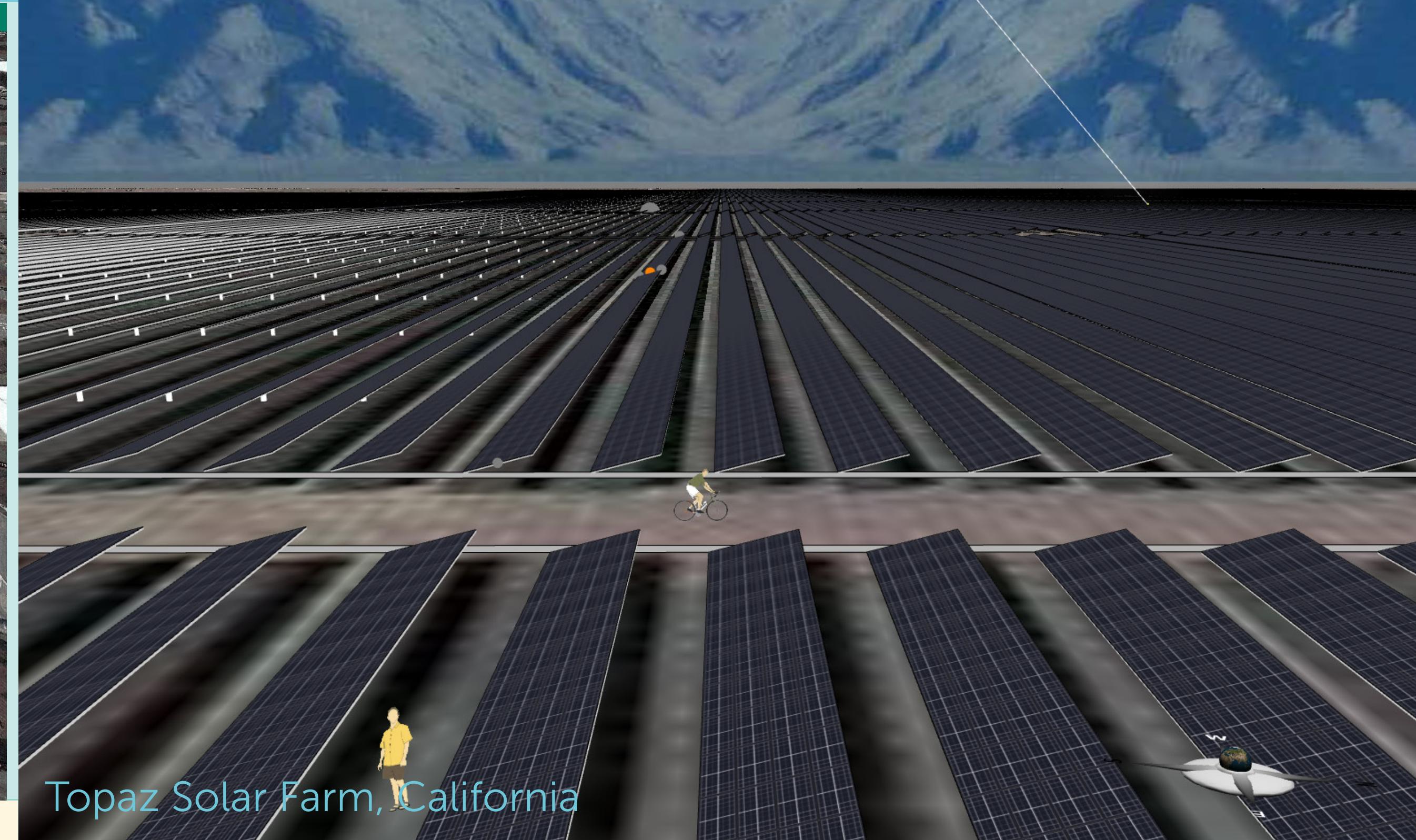


## Main Products

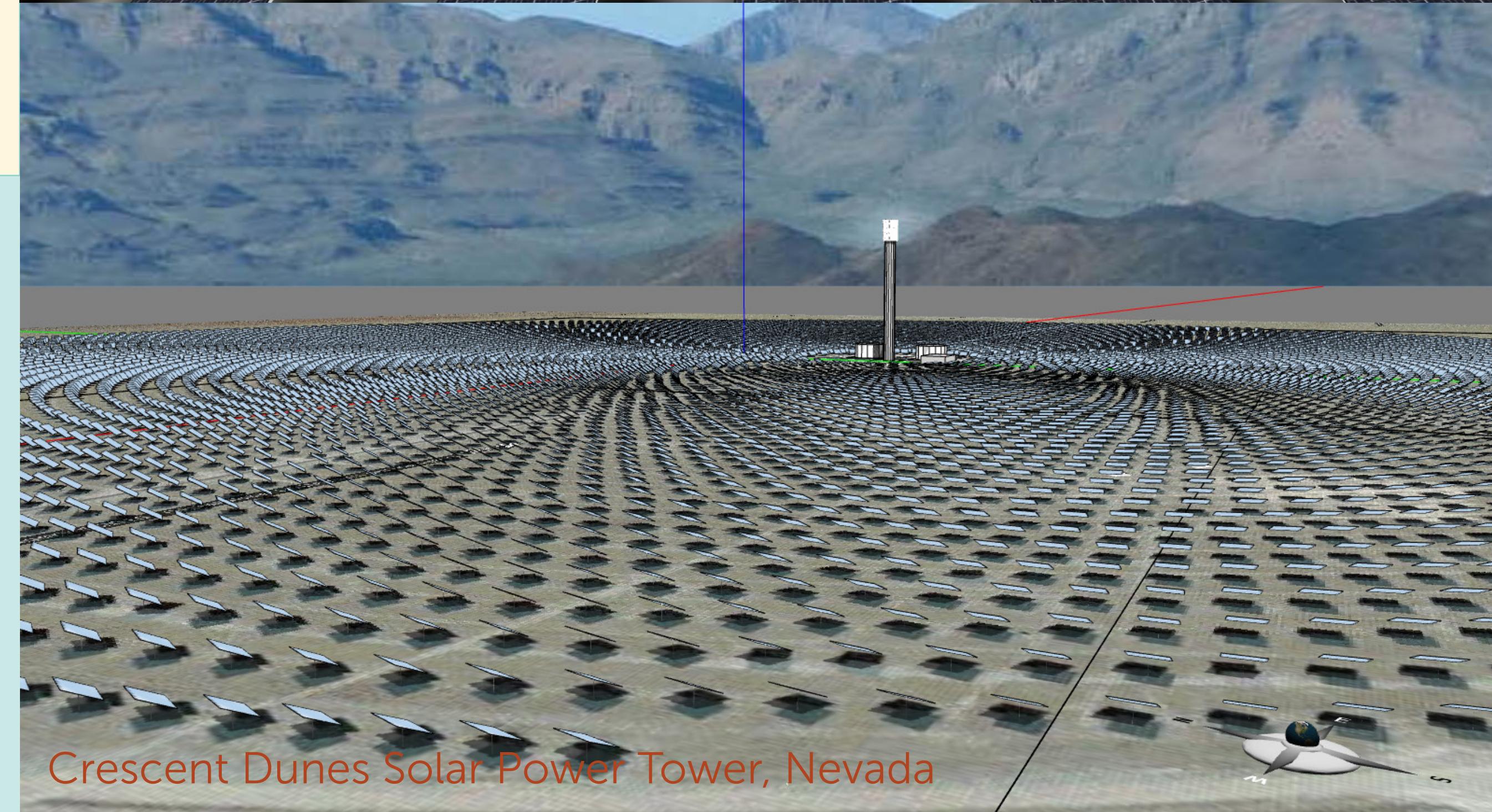
The Building Science Investigation (BSI) curriculum based on infrared thermography supports the learning of scientific inquiry in the context of energy efficiency.



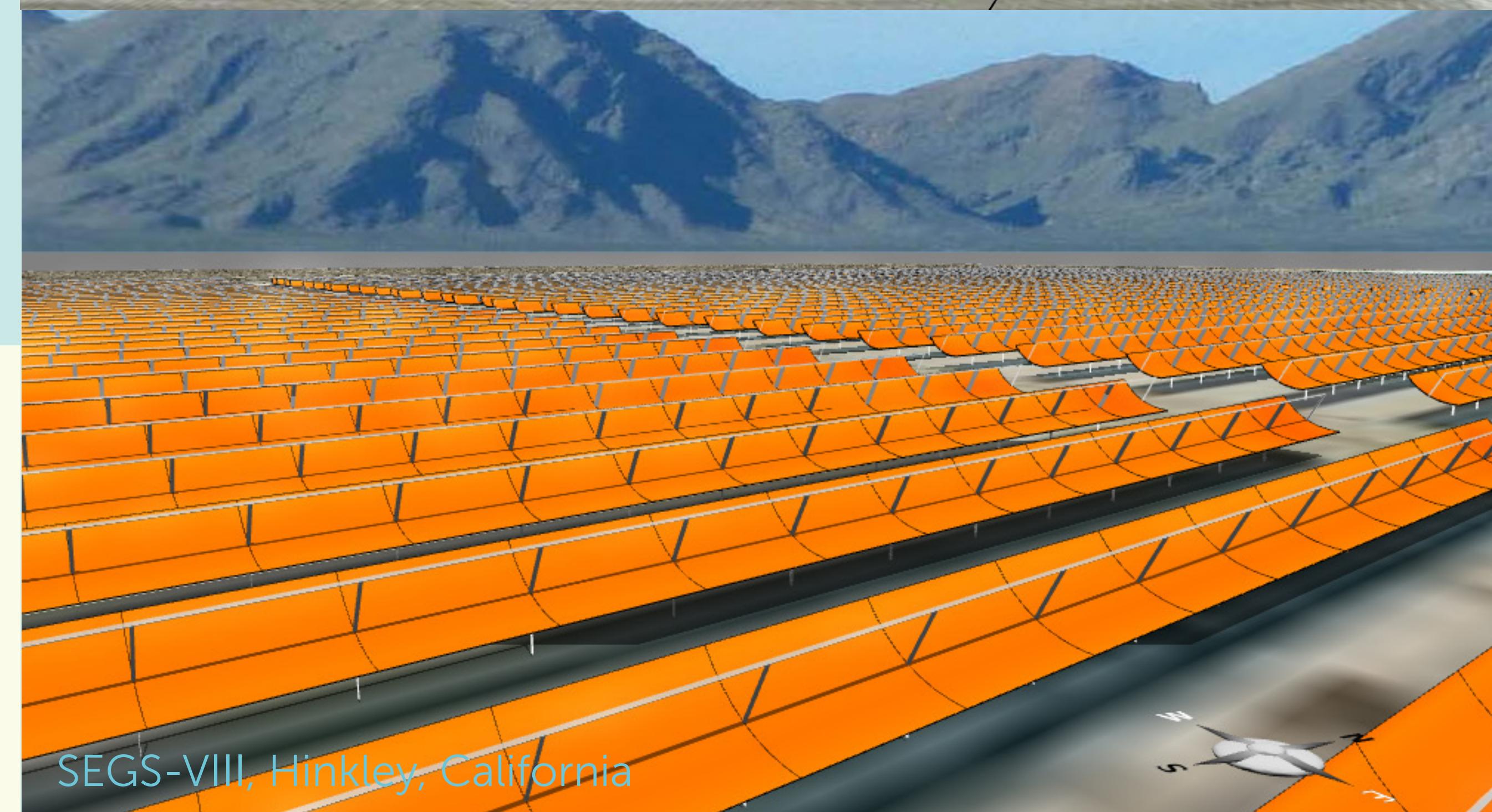
The Solarize Your World (SYW) curriculum based on CAD design and simulation supports the learning of engineering design in the context of renewable energy.



Topaz Solar Farm, California



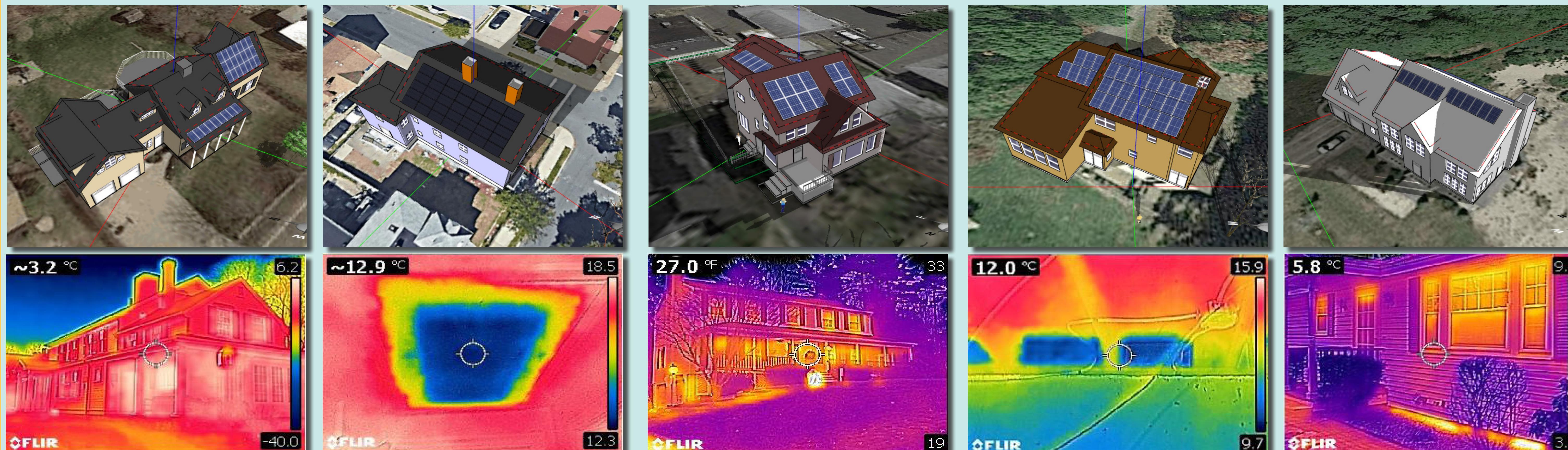
Crescent Dunes Solar Power Tower, Nevada



SEGS-VIII, Hinkley, California

<http://energy.concord.org>

## The Engineering Computation Laboratory



The above images showcase student work collected through our field tests.

### Project outreach

56 schools

88 teachers

2,556 students

### Industry partners

BOSTON SOLAR

FLIR GM General Motors

### Student reactions

- The thing I loved most about the Solarize Your World project was how realistic it felt. I really liked how you could build your own house and customize it the way you would in real life. I also liked how it wasn't too confusing. Most of the symbols looked like what they actually were. For example, the wall icon up at the top looked like a brick wall and when you clicked on it, that was what it was meant to be.
- What I enjoyed most about the project was that I could build my own house, and work on already existing ones. This was fun because I love to build digitally, but also when I added the solar panels, that was super interesting and I learned some science. It was a win win!
- I liked the home energy project because it is something that shows you about your own house instead of something you don't particularly care about.
- It was really cool to see your house from another perspective and bring the science of heat transfer into your home.
- It's personal and allows you to be more knowledgeable about where you live. Really, everyone should know these things about their home.

### Teacher reactions

- This was one of the best and most memorable professional development experiences I have had in many decades as an educator. Every participant I spoke to felt respected and that they had many useful ways of participating and contributing, and were sent away with an abundance of immediately useful resources.
- Thought it was one of the best conferences I have ever attended and gave some real world projects that can be implemented in my school... the Consortium was great at presenting the info in a useful way.
- The workshop was one of the most useful I have ever attended and I have been teaching for 17 years.
- One of, if not the best and most relevant conferences I have ever been to. It has given me very useful and relevant curriculum that can be easily implemented. The time to work with the product was invaluable and having teachers who have already done the projects right there to help work through the issues was key. Also working with a relatively small group for three days gave us a chance to share ideas and philosophies as well.

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