



ACE Hackathon, April 28-29, Phillips Academy

The Virtual Solar Decathlon

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U.S. Department of Energy's Solar Decathlon

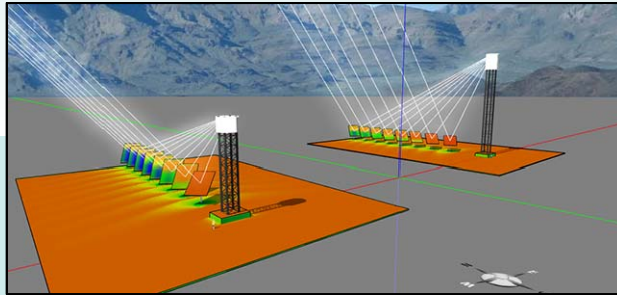
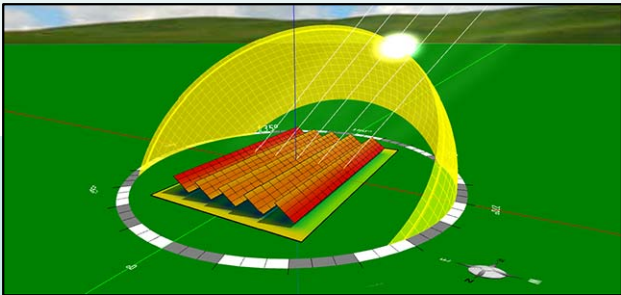
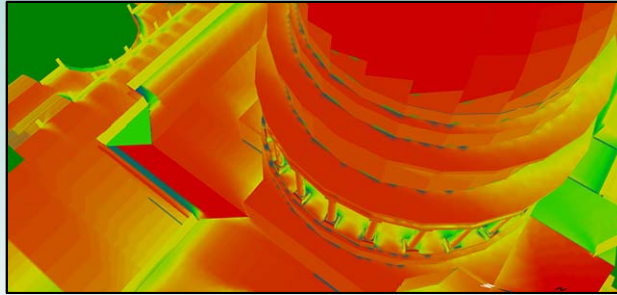
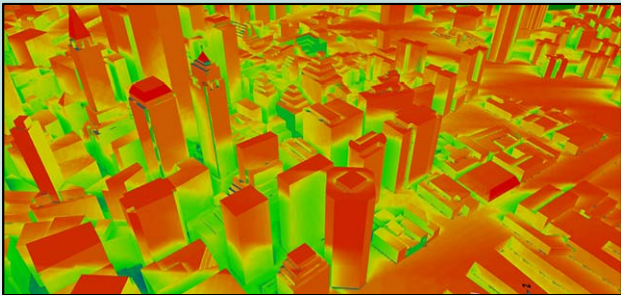
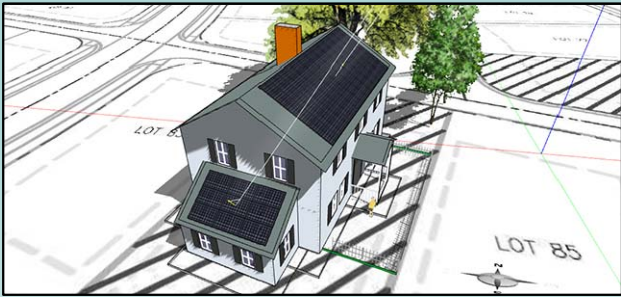
- Costs up to \$250,000
- Takes up to a year to design and build
- Only 20 college teams can participate



[illegible]

- The image is a collage of architectural renderings and aerial views of various buildings, primarily featuring solar panel installations on roofs. The images are tilted and layered, showing different building types like schools, parking facilities, and commercial buildings. Labels identify specific locations such as Dover High School, Hales High School, and various facilities in Lowell, MA. The renderings show solar panels in different colors (blue, green, orange) and configurations (rows, large arrays, etc.). The background is a light blue gradient with a white geometric shape on the left. The bottom left corner shows a close-up of a blue solar panel array.

The Energy3D Playground



Engineering areas:

- Architectural engineering
- Renewable energy
- Urban design
-

<http://energy3d.concord.org>

Modeling Capabilities of Energy3D

Environmental science

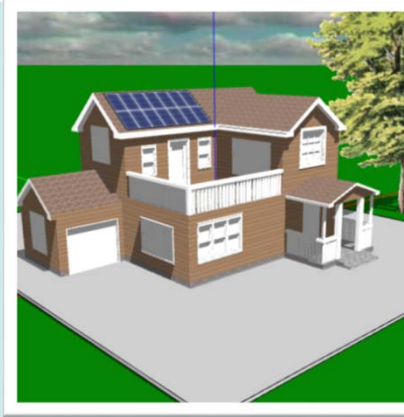
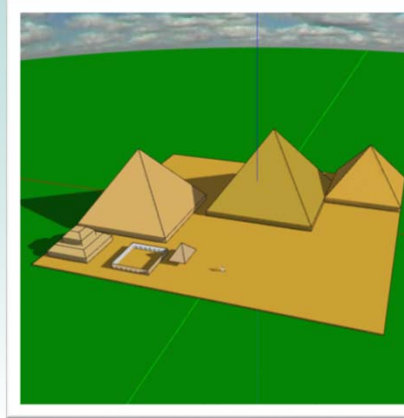
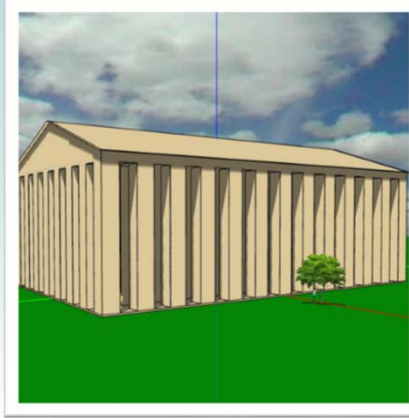
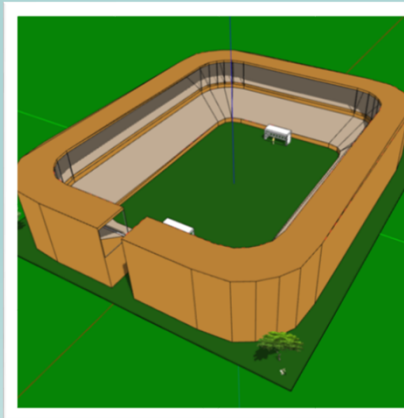
- GIS
- Weather data
- Geothermal

Solar energy science

- Photovoltaics
 - Rooftop systems
 - Ground-mounted arrays
 - Solar canopies
 - Solar curtain walls
 - Solar trackers
- Concentrated solar power
 - Power tower
 - Parabolic trough*
 - Fresnel reflector*
- Solar updraft towers*
- Solar water heaters*
- Energy storage*

Building science

- Building envelope
- Passive solar
- Heat transfer



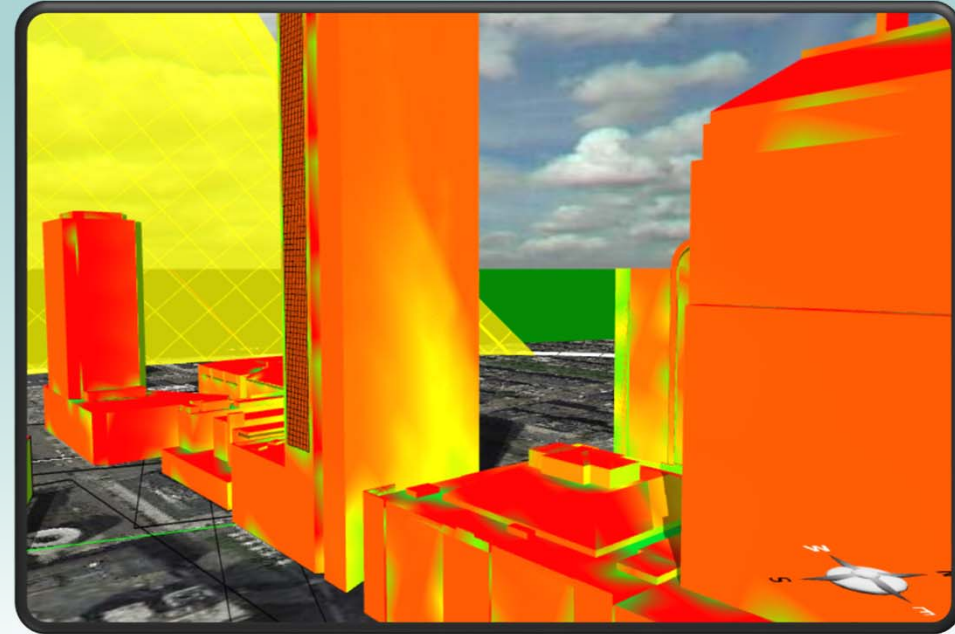
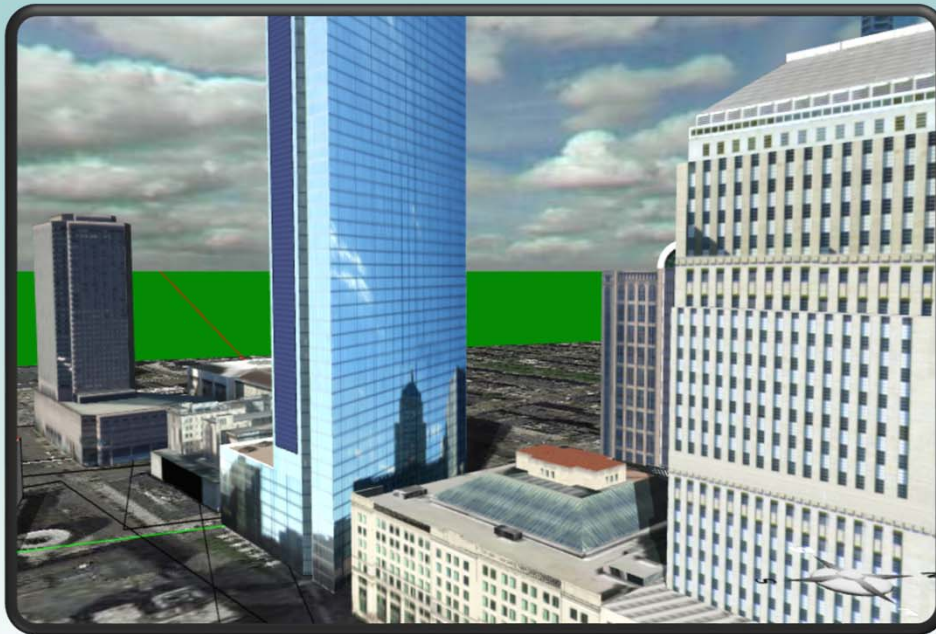
* Under development

Solarize Your World



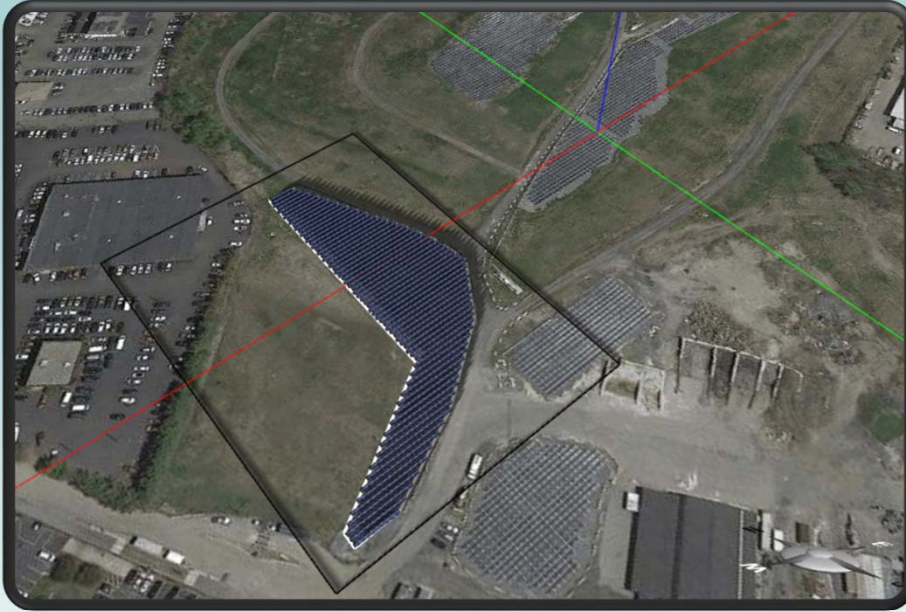
Google Map 3D
(Boston, MA)

Building-Integrated Photovoltaics



Demo: Energy3D design and simulation
(Copley Square, Boston, MA)

Solar Farms



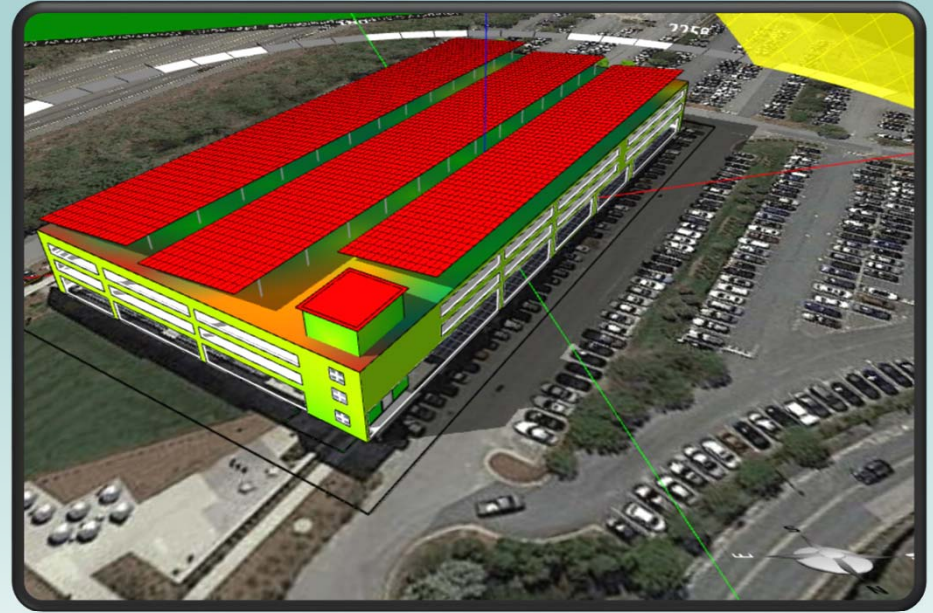
Demo: Energy3D design and simulation
(Glenview Landfill, Lowell, MA)

Solar Canopies



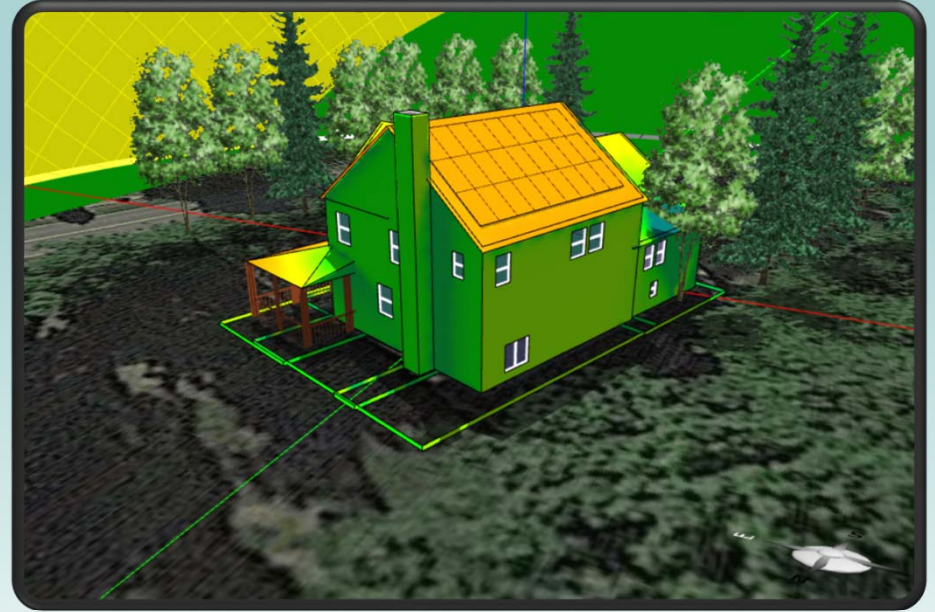
Demo: Energy3D design and simulation
(Andover High School, Andover, MA)

Rooftop Solar Canopies



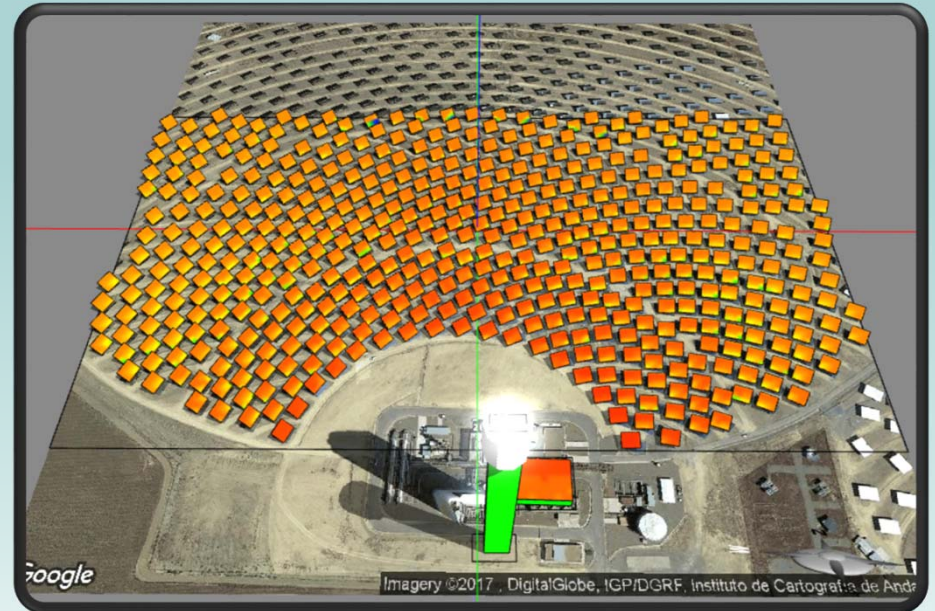
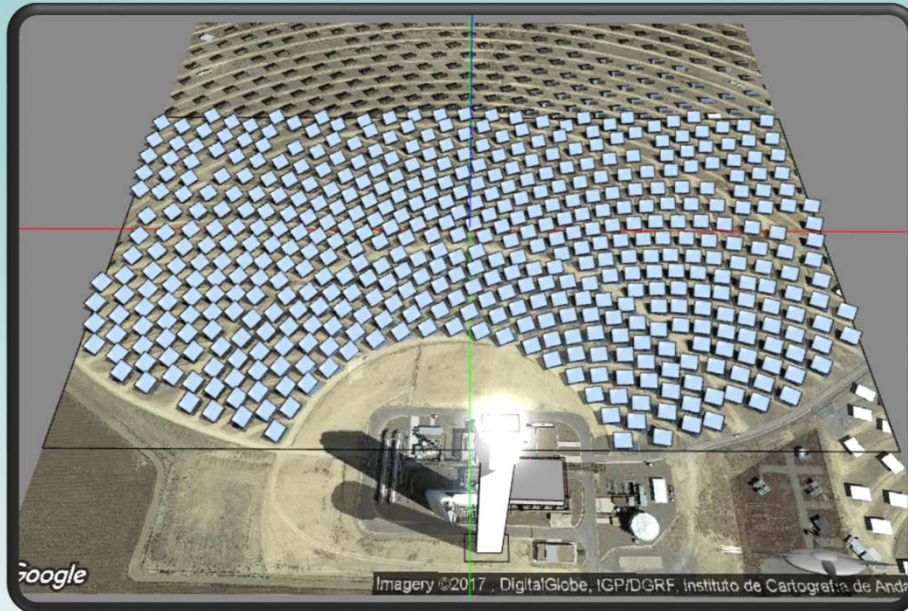
Demo: Energy3D design and simulation
Staple Headquarters, Framingham, MA

Rooftop Solar Panels



Demo: Energy3D design and simulation
(A house in Sterling, MA)

Solar Power Towers



Demo: Energy3D design and simulation
(PS20 CSP power plant, Seville, Spain)