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NOTE TO EDITORS: high-resolution images of the CAVE are available for download from [INL's Flickr page](#).

Center for Advanced Energy Studies houses new 3-D research tool

IDAHO FALLS — Research at Idaho National Laboratory and the Center for Advanced Energy Studies is taking on another dimension — the third dimension, to be precise.

CAES is home to a new 3-D computer-assisted virtual environment — or CAVE — that allows researchers to literally walk into their data and examine it. Such a tool brings data to life, akin to being able to feed blueprints into a computer and then walk around the virtual house.

CAES is the only facility in Idaho, Montana and Wyoming with a CAVE of this kind.

Since its installation, the CAVE has been used by scientists and engineers working on a variety of projects, including storing carbon dioxide underground, and by teams to train Advanced Test Reactor staff, orient subcontractors, and consider new designs.

"This tool allows our researchers to see information from new angles and in a way that isn't possible with a traditional computer," said Patrick O'Leary, director of INL's Center for Advanced Modeling and Simulation.

The four-paneled system uses rear projection to display computer graphics on three walls and the floor. By wearing stereo glasses to create depth perception and holding a "wand" to manipulate and control data, users can tour a building still under design, plot a new transmission route, open a valve or delve into the core of a nuclear reactor.

"Researchers can see their data. They can touch and feel it," O'Leary said of the CAVE. "It allows them to use more of their senses. It's a much more natural way of analyzing data and information."

INL also has provided three smaller, portable 3-D research systems to Boise State University, Idaho State University and University of Idaho, its partners in CAES.

CAES Director Harold Blackman said the goal is to bolster the modeling and simulation capabilities and advance the research being conducted at the CAES partner institutions. The portable 3-D systems, which were designed by O'Leary's group, will be used as educational tools to train students and excite them about energy-related careers.

Students from Boise State University and University of Idaho who interned at CAES over the summer will help train faculty and staff at those schools to use the portable 3-D systems.

"Advanced visualization is becoming an extremely important skill for academic researchers and students in all science and engineering disciplines," Blackman said. "Part of CAES' mission is to train and educate the next generation of scientists and engineers. This is one way to help fulfill that mission."

You can get a glimpse of the CAVE in this video on INL's YouTube channel: <http://www.youtube.com/user/IdahoNationalLab#p/u2/WgqB-IXT-CS>.

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