



Join us the second Thursday of every month for a series of "brown bag" seminars, sponsored by the National Renewable Energy Laboratory and the U.S. Department of Energy. Each seminar is held at NREL's Washington office with a videoconference link to Golden, Colorado. Topics focus on new and innovative renewable energy and energy analysis strategies, models, and technologies.



Energy Analysis Seminar Series

A "brown bag" analytical seminar series

BEopt: Searching for Optimal Building Designs on the Path to Zero Net Energy

Craig Christensen, Senior Engineer
National Renewable Energy Laboratory (NREL)

Thursday, March 10, 2005
Noon – 1 p.m. (in Washington, D.C.)
10 – 11 a.m. (videoconference in Golden, Colo.)

A zero net energy (ZNE) building produces as much on-site energy as it uses annually—using grid-tied, net-metered photovoltaics (PV), and active solar water heating. In this seminar, Craig Christensen will discuss BEopt, a computer program that determines optimal building designs, using detailed energy-simulation programs (DOE2 and TRNSYS). The model starts with a base-case building and tests a series of energy-saving building designs on the way to ZNE. The BEopt technique selects options such as wall type, ceiling variations, window glass, and HVAC type until the cost of saved energy equals the cost of PV energy. Photovoltaics are then added until zero net energy is achieved. This seminar will expand on how the BEopt model finds intermediate points along the ZNE path, identifies near-optimal alternative designs, and provides detailed design information.

Craig Christensen a senior engineer in buildings and thermal systems, started at the National Renewable Energy Laboratory (NREL) in 1979. He currently leads the energy analysis efforts for Zero Energy Buildings and supports Solar Buildings research efforts at NREL. Christensen has led many projects at the Lab related to residential and commercial buildings; active solar systems; passive solar design; energy conservation; and computer modeling of buildings, systems, and components. He originated the concept of the unglazed transpired solar collector at NREL and participated in research that led to an R&D 100 Award and *Popular Science* "Best of What's New" award in 1994. Christensen has a B.S. and M.S. in mechanical engineering from Brigham Young University.



Craig Christensen

Golden, Colo., information

1617 Cole Blvd., Golden, Colorado
Building 15, Conference Room 375

Please contact Lynne Fenn at lynne_fenn@nrel.gov or 303-384-7439

Washington, D.C., information

901 D Street SW (also the Aerospace Building, 370 L'Enfant Promenade), adjacent to the Forrestal Building

Please contact Wanda Addison at wanda_addison@nrel.gov or 202-646-5278

If you are interested in participating in the seminar via conference call, please contact Wanda Addison at wanda_addison@nrel.gov or 202-646-5278 for instructions.

