

Q&A: Using Computer Software to Unearth Building Energy Savings

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With an increased focus on environmentally responsible buildings, both new and existing, Eugene Garcia, president of ECM Management Services, and Todd Coulard (pictured), energy services leader of Trane New York/New Jersey, spoke with CPN senior editor Eugene Gilligan about using a computer software tool to allow buildings to perform in a more environmentally friendly, cost effective manner.



CPN: Can you give us a brief explanation of energy modeling?

Coulard: Energy modeling is the utilization of a sophisticated software tool to recreate building systems in a software environment. Once the model is complete and verified, you can virtually run the building in software. This provides a powerful resource for making infrastructure changes in the software environment, and running building simulations to determine the effect of those changes.

CPN: Is enough focus being put on buildings more energy efficient development?

Garcia: There are a lot of people out there now that are focusing on energy efficiency. When you do a new building, you have to make a lot of assumptions in the energy modeling, because the building is not operating yet. An existing building is a living, breathing mechanism. But you have to get information on the building from a lot of different sources. We used to see owners focused on what costs being energy efficient could save. But now, we are seeing more focus on green building, or a combination of cost and environmental reasons.

CPN: What energy savings can energy modeling identify?

Garcia: State of the art energy modeling tools act like a fishfinder for energy efficiency opportunities. The size of the achievable savings is dependent upon many factors; the efficiency and health of the existing building systems, local weather conditions, operational requirements of the building occupants and the availability of capital for investment in building system upgrades.

CPN: What are the major factors to consider when deciding whether or not to run an energy-modeling programs?

Garcia: Building size is a major consideration. The bigger buildings have more opportunities for savings. Also, complexity of the systems in a building matter. If a building has two or three operating systems, one running office space, and one running a data center, that could be ideal for energy modeling. It is also important if you are looking for LEED certification.

CPN: What kind of energy savings have been achieved by energy modeling?

Coulard: We worked on a project recently, where the building had historically high energy bills. We couldn't figure out why at first, but when we looked further, we found that they had deferred maintenance on their air system. We have a sophisticated customer base. Building owners and operators are looking more at a building's performance over its life cycle, not the lowest first cost. With \$70 a barrel energy prices, there is going to be more emphasis on energy efficiency over a longer period.

CPN: Are various governments offering tax credits for making existing buildings more energy efficient, and what is the key to winning these credits?

Garcia: Various state and local governments offer many different kinds of incentives for making buildings more energy efficient. Some of these incentives are distributed as rebates. Others are distributed through tax credits or deductions. The key to securing these credits is to understand the program and provide the proper proof that the energy savings will be achieved. Energy modeling is a powerful tool for predicting future energy savings for building upgrade projects.

CPN: How do you utilize energy modeling to benefit your clients?

Coulard: Our team is highly skilled at determining very quickly whether there is an opportunity to generate energy savings in a building. After we have made that high-level determination, we develop an energy model to drill down and understand exactly how the building is currently operating. We then use the model to test a variety of solutions to determine which would function best in the building.

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