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# COMPUTE ENERGY SAVINGS WITH DATA CENTER SOLUTIONS

Everyone, from the corporate CEO to a person making a purchase online, depends on data centers. With the cost of energy to power data centers approaching the capital costs to purchase IT equipment, energy-efficiency improvements are an essential business decision. By implementing strategies such as better facility design and new technology, data center operators can accelerate equipment functions, increase profitability and lower their facilities' environmental impacts.

## SAVINGS ARE IN THE AIR AT EASYSTREET

As a managed hosting and colocation services provider, EasyStreet® Online Services has delivered secure IT infrastructure solutions since 1995. Known for its expert technical support, the company is also recognized for its environmental focus, including its use of 100 percent clean wind power purchased from its electricity utility, Portland General Electric.

In 2009, Energy Trust of Oregon conducted an energy study of EasyStreet's Beaverton, Ore., data center to establish an operational usage baseline and discover possible efficiency improvements the company could apply to its facility. The study identified airflow management strategies that made technological and financial sense for EasyStreet's facility—and qualified for Energy Trust incentives, as well.

The data center is a grid of aisles with nearly 200 cabinets containing equipment owned by colocation customers. Using thermal imaging, computational fluid dynamics modeling and expert analysis, EasyStreet was able to identify hot spots in both the older and newer areas of the data center, indicating the facility needed better airflow management.



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Drawing on Energy Trust study recommendations, EasyStreet planned and designed the energy-efficient airflow management project.

## PROJECT-AT-A-GLANCE

### Project Benefits

- Reduced energy use and costs
- Lowered average temperatures, increasing stability
- Improved conditions for servers and air conditioning equipment
- Maintained functionality of fire suppression system

### Equipment Installed

- Diffusers on air handling system
- AirBlock™ isolation components from Simplex®

### Financial Analysis

- \$131,885 project cost
- \$65,942 Energy Trust incentive
- \$35,121 estimated annual energy cost savings
- 524,187 estimated annual kilowatt hours saved



For customers, the biggest advantage of improved airflow is better assurance that we're creating the right environment for the equipment. For EasyStreet, benefits include happy customers, more capacity and lower power bills.

Rich Bader, president and CEO  
EasyStreet



## Savings are in the air at EasyStreet, cont.

The first step in the airflow project involved determining the least disruptive layout that would allow for hot and cold air management—keeping the area at a stable temperature is essential for reliable, uninterrupted performance.

EasyStreet thoroughly communicated with customers about upcoming changes and coordinated the necessary moves, which included aligning all the servers so the air-intake sides faced front into the “cold aisles” and the heat-exhaust sides faced back to the “hot aisles.” Managing cables and blocking cabinet gaps with blanking panels also improved bypass airflow.

The next step was to move the cold air into the right areas. EasyStreet contracted with Protemp Associates to install diffusers on the air handlers to direct the cold air into the correct aisles.

Finally, Weaver Technologies used AirBlock™ components from Simplex® to create caps over the top of the hot aisles, extending them all the way to the air handlers. A special feature of the cap design ensures that the caps will drop open to expose the existing fire suppression system if needed.

Once the containment components were in place, the air handlers were tuned so they operate steadily and efficiently, rather than in bursts of “short cycling” (running for a shorter period of time than it should). At first, it was challenging to match the air handlers to the temperature fluctuations, but now with the right configuration EasyStreet has taken two of six units offline.

With all of these improvements in place, the data center is maintaining stable intake temperatures below its target of 74 degrees. Measurements show less than five degrees per hour variance, which is exceptional by industry standards. With Energy Trust incentives, EasyStreet expects an 18-month payback on the project.

“Data center operators might be wary of touching their existing systems,” said Rich Bader, president and CEO of EasyStreet. “It seems like trying to fix a jet engine midair. We can say it’s both possible and worthwhile to do. The net result exceeded our expectations in terms of energy reductions.”



To learn more about energy efficiency opportunities in your business, visit [www.energytrust.org](http://www.energytrust.org) or call 1.866.368.7878.