

— **The Greenest Kilowatt**  
is One Unused —



**PEGASUS**

# The Greenest Kilowatt is One Unused

By Jeffrey Becker, CIHM

“The greenest kilowatt hour (a data center has) is the one it doesn’t have to use,” said Joe Stepenovitch, Co-Founder and COO of the Energy IQ Team. How a kilowatt is produced is far less important than not having to use it all. Data center managers can make their facilities greener and reduce their carbon footprint and costs by improving efficiencies. Doing so lowers operating costs, appeases environmentalists and green-conscious clients, prepares your company for looming government caps on carbon emissions, and aligns you with an inevitable future based on alternative power sources.

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## THE MANY WAYS GREEN PAYS

Greening the data center through heightened efficiency lowers power bills, but it is also the right thing to do. Demonstrating corporate social responsibility pays dividends in public relations and marketing. Those who don’t see the benefits may soon have no choice but to become more environmentally friendly when federal legislation eventually places caps on carbon emissions.

## INDUSTRY PLAYERS AND ENVIRONMENTALISTS

Saving kilowatts also helps to relieve mounting pressure from environmental groups and concerned consumers regarding the amount, and sources, of power data centers consume. Greenpeace International recently criticized data centers run by Apple, Google and Microsoft for their consumption and power sources, and cited Yahoo as the greenest.

Major technology firms have responded. Facebook recently announced a huge new data center with a design that’s intended to make it one of the world’s most energy-efficient operations. Cisco Systems is another big name touting the energy efficiency and environmental friendliness of its data centers. Emerson Network Power, i/o Data Centers and AISO are tapping renewable energy sources like solar, wind and geothermal to augment power to their data centers.

Even though alternative renewable energy sources will undoubtedly power the future data center, and can reduce a facility’s carbon footprint right now, there are too many issues to make them viable for most firms. Currently, their payoff is too long, implementing the technologies are expensive, and the flow of power they deliver inconsistent. The cost per kilowatt is just too high at the moment for most data centers to rationalize using renewable energy alternatives. That’s why superior efficiency to run greener, more environmentally conscious data centers has such industry traction.

## EASIEST FIRST GREEN STEPS: SAVING KILOWATTS AND CARBON

Aside from mounting solar panels on your facility’s roof, putting a few windmills out front, or relocating your data center to the fertile geothermal sources of Greenland or Iceland, how can a data center save energy and become greener right now? Improving the efficiency of your operation will reduce your carbon footprint until renewables mature to the point where they are cost-effective.

The cooling infrastructure of a data center consumes the largest portion of its total power usage. Maximize power consumption and minimize wasted air to save kilowatts and money through these five simple steps.



## **1. REDUCE BYPASS AIRFLOW**

The space occupied by PDUs (power distribution units) often cover holes in raised floorings where air escapes. Most data centers also have too many perforated tiles installed. Better managing perforated tiles and grates is an easy way to improve airflow.

## **2. COOLING UNIT**

Calibrate cooling unit return air sensors for both temperature and relative humidity

## **3. USE BLANKING PANELS**

Effectively sealing off hot air exhaust using banking panels can decrease operating expenses by as much as 29%.

## **4. RAISE COOLING UNIT SET POINTS**

Set points should be as high as possible without causing any IT equipment intake temperatures to exceed ASHRAE recommendations of 80.6 degrees Fahrenheit.

## **5. TURN OFF COOLING UNITS**

Calibrate cooling unit return air sensors for both temperature and relative humidity

## **6. USE BLANKING PANELS**

Many computer rooms have more cooling units running than are necessary to support the load.

Follow the steps above to save kilowatts and reduce carbon usage. A greener, more environmentally friendly data center pleases both budget-conscious CFOs and environmentalists, while positioning your data center for the future.

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