Upgrade Data Center Efficiencies

Store, manage and disseminate information at lower costs by upgrading to a more efficient data center. Data center operators across Greater Philadelphia are saving on upfront costs and managing operating expenses by installing energy-efficient equipment and taking advantage of utility incentives.

While many large and small data centers have made advances in running more efficiently, energy-saving opportunities remain, especially for smaller server operations. Nearly half[1] of U.S. server electricity consumption is attributed to small server rooms and closets.

Improvements in server facilities—including virtualization and consolidation, more efficient storage devices, as well as reliable approaches for reducing per-unit power consumption—often prove cost effective with payback periods of a few years or less.

Companies that proactively reduce their energy use can achieve savings in an even shorter period through participation in PECO Smart Ideas.[2] Financial incentives and technical support are available for businesses that upgrade to high-efficiency cooling equipment and install a wide range of efficient and effective data center solutions.

Data centers that use their own maintenance staff to replace lighting equipment are encouraged to contact a distributor who offers PECO Instant Lighting Discounts[3] on energy-efficient interior and exterior lighting. Save instantly at checkout on approved products.

Virtualization Provides Real Benefits

Commercial buildings that contain data centers require as much as three times[4] more electricity per square foot. Through server virtualization, data center operators can save significant amounts of energy and money by running multiple workloads on one physical host server. A recent study[5] found that 86% of large enterprise data centers have consolidated their servers.

Virtualization can also improve scalability, reduce downtime and enable faster deployments. In the event of disaster recovery, virtual servers can restart much more rapidly[6] than physical servers.

By using fewer servers, virtualization delivers significant savings on the cost of ownership. An Uptime Institute study[7] found that decommissioning a single 1U rack server would save $500 in average annual energy costs, while achieving an additional $500 in savings from avoided operating system licenses, plus $1,500 in reduced hardware maintenance costs.

PECO Smart Ideas offers incentives on a per-kW basis for data centers that consolidate servers onto a virtualized server.

Incentives for Efficient Server Technology

Server virtualization is not the only way to save energy.

Researchers[8] at Stanford University found up to 30% of data center servers consume electricity without providing any useful information services. Minimize wasted resources by replacing outdated or underutilized equipment, employing power-management software or entirely replacing personal computer (PC) technology.

The following are examples of just some of the data center upgrades eligible for PECO Smart Ideas incentives:

- Upgrading to ENERGY STAR® certified servers, which limit power conversion losses and generate less waste heat, reducing the need[9] for excess air conditioning.

- Replacing the mainframe with a system having a power supply that is more efficient than the existing mainframe's power supply. Newer, more powerful mainframes can at times result in reduced software costs[10] as well as energy savings.

- Installation of ENERGY STAR certified Uninterruptible Power Supplies (UPS) for emergency back-up power.

- Entirely replacing PC technology with ENERGY STAR certified thin clients or fanless desktop terminals. In addition to cost savings, thin clients can offer security, manageability and scalability benefits.[11]

Run a Cool Server

Powering the never-ending need for reliable IT services generates significant heat. Removing excess heat accounts for about 10%[12] of an average data center's energy use.

Rather than run multiple computer room air conditioning (CRAC) units, especially at times of low server load, current best practices call for the use of variable speed drives (VSDs), economizers and airflow management solutions.

PECO Smart Ideas offers incentives for the installation of high-efficiency CRACs, air-cooled chillers, water-cooled centrifugal chillers and computer room air handlers (CRAHs).

VSDs that reduce fan speed by 10% can reduce a fan's electricity use by 25%, while a 20% speed reduction can achieve efficiencies of 45%.[13] Upgrades are feasible for many CRAC and CRAH units and qualify for incentives that increase with more electricity saved.

Other interventions include installing economizers to bring cool outside air into the data center and rearranging servers in alternating hot and cold aisles. By installing new air containment measures, data centers have achieved 75% improvement[14] in the energy efficiency of their air conditioner fans.

In addition, cooling system optimization measures and other data center projects that can provide electricity savings are eligible for custom project incentives.

PECO Smart Ideas representatives are available to help identify significant energy-saving measures and assist throughout the application process.

▶ Data center operators interested in maximizing their energy efficiency potential should contact PECO at **1-844-4BIZ-SAVE** (1-844-424-9728) or visit **peco.com/biz**.

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1 https://www.nrdc.org/experts/pierre-delforge/power-efficiency-cut-data-center-energy-waste?elqTrackId=495df989d4974218a08de0357219bef6&elqaid=70&elqat=2

2 http://www.peco.com/WaysToSave/ForYourBusiness/Pages/Incentives.aspx?elqTrackId=a698941a55f14652be6e3a89a092e9c4&elqaid=70&elqat=2

3 peco.com/InstantDiscounts

4 https://www.eia.gov/todayinenergy/detail.php?id=28232&elqTrackId=87b3413f679d4cd8a9f16fa22512bb41&elqaid=70&elqat=2

5 https://www.veeam.com/news/veeam-v-index-q3-results-are-released148.html

6 https://www.energystar.gov/products/low_carbon_it_campaign/12_ways_save_energy_data_center/server_virtualization?elqTrackId=1f8d74fa078e455cba58d05c3e95bda6&elqaid=70&elqat=2

7 https://www.energystar.gov/products/low_carbon_it_campaign/12_ways_save_energy_data_center/server_virtualization?elqTrackId=ed19d1be981542e5a80490af50185c45&elqaid=70&elqat=2

8 https://www.bizenergyadvisor.com/data-centers?elqTrackId=cb6521c6b62a4acd9b9ed8769de724e1&elqaid=70&elqat=2

9 https://www.energystar.gov/products/data_center_equipment/enterprise_servers?elqTrackId=611f55d3ec6d467db144322cf1edcfd9&elqaid=70&elqat=2

10 https://www.ensono.com/blog/mainframe-moves-that-save-money?elqTrackId=f602024e6c5e45679a3400ef92c6547b&elqaid=70&elqat=2

11 http://www.devonit.com/thin-client-education?elqTrackId=b2399fb269a44b849bf701922a73992a&elqaid=70&elqat=2

12 https://www.energystar.gov/products/low_carbon_it_campaign/12_ways_save_energy_data_center/variable_speed_fan_drives?elqTrackId=503c96eee6a74c50a76a594b7498c098&elqa-id=70&elqat=2

13 https://www.energystar.gov/products/low_carbon_it_campaign/12_ways_save_energy_data_center/variable_speed_fan_drives?elqTrackId=81a496e74578418f8234933532a166fa&elqa-id=70&elqat=2

14 https://eta.lbl.gov/sites/all/files/publications/lbnl-1005775_v2.pdf?elqTrackId=054de53a55fd42d9927c1189182c7865&elqaid=70&elqat=2

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