

Go Green PC Power Play



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Federal ENERGY STAR® 4.0 qualified
PCs
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Green PC Question



The Question

How much energy and power can the Federal government save with ENERGY STAR® 4.0 qualified PCs?

Why Should We Care?

- 100 million office computers use **1%** of the nation's commercial electricity*
- The average PC wastes $\frac{1}{2}$ of the power delivered to it**
- As many as **60%** of employed adults in the U.S. do not turn their PC off at night, wasting significant energy and money***
- The U.S. government is the largest energy consumer in the nation****



*ENERGY STAR, http://www.federalelectronicchallenge.net/resources/docs/use_energy_w.pdf

**Climate Savers, <http://www.climatesaverscomputing.org/>

***PC Energy Report 2007, http://www.ase.org/uploaded_files/greencampus/core_portfolio/power_management/pc_report.pdf

****U.S. DOE, <http://www.energy.gov/news/2615.htm>

Federal Government is Focused on Green

EPA Enacts ENERGY STAR® 3.0 Guidelines for Computers and Monitors**

1999

Executive Order 13123: Greening the Government Through Efficient Energy Management

Requires agencies to strive to meet ENERGY STAR® specifications to increase energy performance and environmental quality*

2005

Energy Policy Act of 2005

Directs agencies to purchase ENERGY STAR® qualified or FEMP (Federal Energy Management Program)-designated products; Mandates a total Federal energy reduction goal of 2% by FY 2015***

EPA Enacts ENERGY STAR® 4.0 Guidelines for PCs, Laptops, and Other Equipment*****

2007

Executive Order 13423: Strengthening Federal Environmental, Energy, and Transportation Management

Requires agencies to reduce greenhouse gases through a 3% reduction in energy intensity a year or 30% by the end of fiscal year 2015 (compares with 2% per year and 20% overall from EPA Act 2005)****

+ Requires agencies to purchase EPEAT™-registered green electronic products to meet 95% of their needs***

*U.S. DOE, <http://www1.eere.energy.gov/femp/pdfs/eo13123.pdf>

** Energy Star, http://www.energystar.gov/ia/partners/product_specs/program_reqs/computer.mou.v3.pdf

***U.S. DOE, http://www1.eere.energy.gov/femp/about/legislation_epact_05.html

****U.S. DOE, http://www1.eere.energy.gov/femp/about/eo_fedmgmt.html

*****EPA, http://www.energystar.gov/index.cfm?c=revisions.computer_spec

Federal Government is Focused on Green

ENERGY STAR® 4.0

- Establishes efficiency requirements for all modes of operation, which ensure energy savings when a computer is active and running basic applications, as well as when it is on standby*
- Requires computers to include an internal power supply that is at least 80% efficient*

Electronic Product Environmental Assessment Tool (EPEAT™)

- A system to help purchasers in the public and private sectors evaluate, compare, and select desktop computers, notebooks, and monitors based on their environmental attributes**

*EPA, <http://yosemite.epa.gov/opa/admpress.nsf/eebfaebc1afd883d85257355005afd19/4a118c6cb8a366388525738b0067f146!OpenDocument>

**EPEAT, <http://www.epeat.net/>

Power Management Makes an Impact

Power management features place inactive monitors and computers into a low-power sleep mode when sitting idle. Agencies should activate ENERGY STAR® power management features to realize maximum energy savings.

Monitor Power Management

Places inactive monitors into a low-power sleep mode which may save \$10 to \$30 per monitor annually*

Computer Power Management

Places inactive computers into a low-power sleep mode which may save \$15 to \$45 per desktop computer annually*

Power Management Usage Scenarios Annual kWh Used**

Scenario	PC Frequency	CRT Monitor Frequency	LCD Monitor Frequency	Laptop Frequency
Power management enabled and equipment turned off	3% 3.0 – 101; 4.0 – 80	25% 3.0 – 70; 4.0 – 37	15% 3.0 – 50; 4.0 – 28	6% 3.0 – 24; 4.0 – 20
Power management not enabled and equipment turned off	33% 3.0 – 187; 4.0 – 141	7% 3.0 – 147; 4.0 – 74	3% 3.0 – 92; 4.0 – 58	30% 3.0 – 44; 4.0 – 37
Power management enabled and equipment left on	5% 3.0 – 123; 4.0 – 94	52% 3.0 – 86; 4.0 – 44	66% 3.0 – 60; 4.0 – 30	11% 3.0 – 27; 4.0 – 23
Power management not enabled and equipment left on	59% 3.0 – 741; 4.0 – 535	16% 3.0 – 643; 4.0 – 308	16% 3.0 – 363; 4.0 – 243	53% 3.0 – 171; 4.0 – 144

*Energy Star, http://www.energystar.gov/index.cfm?c=power_mgt.pr_power_management

**Sanchez, Maria C., Carrie A. Webber, Richard Brown, and Gregory K. Homan. 2008 Status Report - Savings Estimates for the ENERGY STAR® Voluntary Labeling Program. LBNL-56380. October. Lawrence Berkeley National Laboratory, Berkeley CA.

Estimated Current Cost to Power Federal ENERGY STAR® 3.0 Qualified PCs

\$293,484,802

Estimated annual cost to power Federal ENERGY STAR® 3.0 qualified PCs – desktops, laptops, monitors

The total estimated cost per year is based on the following data:

4,548,776*	Current installed base of ENERGY STAR® 3.0 qualified Federal desktops that are 0-4 years old
440,953**	Current installed base of ENERGY STAR® 3.0 qualified Federal CRT monitors that are 0-4 years old
3,968,575***	Current installed base of ENERGY STAR® 3.0 qualified Federal LCD monitors that are 0-4 years old
1,089,886****	Current installed base of ENERGY STAR® 3.0 qualified Federal laptops that are 0-4 years old
\$.10/kWh*****	Estimated average cost per kWh

Applied Against Power Management Scenarios =

\$231,114,221	Estimated current cost to power ENERGY STAR® 3.0 qualified Federal desktops
\$7,733,850	Estimated current cost to power ENERGY STAR® 3.0 qualified Federal CRT monitors
\$42,839,798	Estimated current cost to power ENERGY STAR® 3.0 qualified Federal LCD monitors
\$11,796,933	Estimated current cost to power ENERGY STAR® 3.0 qualified Federal laptops
\$293,484,802	Total estimated annual cost to power ENERGY STAR® 3.0 qualified Federal PCs, 0-4 years old

*Government Insights, an IDC Company – 98% of total population (4,641,608) are ENERGY STAR 3.0 qualified

**Government Insights, an IDC Company – 95% of total population are ENERGY STAR 3.0 qualified and assuming that 10% of the total population of monitors are CRT

*** Government Insights, an IDC Company – 95% of total population are ENERGY STAR 3.0 qualified and assuming that 90% of the total population of monitors are LCD

****Government Insights, an IDC Company – 98% of total population (1,112,129) are ENERGY STAR 3.0 qualified

*****Energy Information Administration, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_a.html

Source, data on 3.0 ratios as a portion of total population: Sanchez, Marla C., Carrie A. Webber, Richard Brown, and Gregory K. Homan. 2008 Status Report - Savings Estimates for the ENERGY STAR® Voluntary Labeling Program. LBNL-56380. October. Lawrence Berkeley National Laboratory, Berkeley CA.

Estimated Projected Cost to Power Federal ENERGY STAR® 4.0 Qualified PCs

\$211,041,618

Estimated projected annual cost to power Federal ENERGY STAR® 4.0 qualified PCs – assuming all 3.0 PCs are refreshed with 4.0 PCs

The estimated projected cost per year is based on the following:

4,548,776*	Current installed base of ENERGY STAR® 3.0 qualified Federal desktops that are 0-4 years old
440,953**	Current installed base of ENERGY STAR® 3.0 qualified Federal CRT monitors that are 0-4 years old
3,968,575***	Current installed base of ENERGY STAR® 3.0 qualified Federal LCD monitors that are 0-4 years old
1,089,886****	Current installed base of ENERGY STAR® 3.0 qualified Federal laptops that are 0-4 years old
\$.10/kWh*****	Estimated average cost per kWh

Applied Against Power Management Scenarios =

\$167,977,207	Estimated current cost to power ENERGY STAR® 4.0 qualified Federal desktops
\$3,818,200	Estimated current cost to power ENERGY STAR® 4.0 qualified Federal CRT monitors
\$29,311,895	Estimated current cost to power ENERGY STAR® 4.0 qualified Federal LCD monitors
\$9,934,316	Estimated current cost to power ENERGY STAR® 4.0 qualified Federal laptops
\$211,041,618	Estimated projected annual cost to power ENERGY STAR® 4.0 qualified Federal PCs

*Government Insights, an IDC Company – 98% of total population (4,641,608) are ENERGY STAR 3.0 qualified

**Government Insights, an IDC Company – 95% of total population are ENERGY STAR 3.0 qualified and assuming that 10% of the total population of monitors are CRT

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****Government Insights, an IDC Company – 98% of total population (1,112,129) are ENERGY STAR 3.0

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Source, data on 3.0 ratios as a portion of total population: Sanchez, Maria C., Carrie A. Webber, Richard Brown, and Gregory K. Homan. 2008 Status Report - Savings Estimates for the ENERGY STAR® Voluntary Labeling Program. LBNL-56380. October. Lawrence Berkeley National Laboratory, Berkeley CA.

Estimated Projected Savings – ENERGY STAR® 3.0 vs. 4.0

ENERGY STAR® 4.0 guidelines took effect July 20, 2007.

3.0

\$293,484,802

Estimated annual cost to power ENERGY STAR® 3.0 qualified Federal PCs

4.0

\$211,041,618

Estimated projected annual cost to power ENERGY STAR® 4.0 qualified Federal PCs

**1
Year**

\$82,443,184

Annualized Estimated Potential
Energy Cost Savings

**4
Years**

\$329,772,736

Four-Year Estimated Potential
Energy Cost Savings

Not Just kWh

Over One Year, Saving

\$82,443,184
(824,431,840 kWh)

Is Equivalent to:

Providing
33,377,807¹
Free lunches to
school children

Providing
1,832,071²
Americans with flu shots

Conserving
1,347,982³
Barrels of oil

Over Four Years, Saving

\$329,772,736
(3,297,727,360 kWh)

Is Equivalent to:

Paying
7,924⁴
Police officers for
one year

Providing
28,537⁵
Americans with
Social Security for one year

Providing
989,318,208⁶
Meals to the hungry



1: U.S. Department of Agriculture, <http://www.fns.usda.gov/cnd/Lunch/AboutLunch/NSLPFactSheet.pdf>

2: Boulder County Colorado, <http://www.co.boulder.co.us/health/hpe/iz/flu/faqs.htm>

3: U.S. Climate Technology Cooperation Gateway, <http://www.usctcgateway.net/tool/>

4: U.S. Department of Labor Occupational Outlook Handbook, <http://www.bls.gov/oco/ocos160.htm>

5: Social Security Administration, http://www.ssa.gov/policy/docs/quickfacts/stat_snapshot/

6: Capital Area Food Bank, <http://www.capitalareafoodbank.org/about/>

Calls to Action

For Federal Agencies:

- **Audit existing PC inventory**
- **Baseline current energy consumption**
- **Enable power management features on monitors and computers**
- **Coach employees to turn PCs off at night**
- **Purchase EPEAT™-registered equipment**

For Industry:

- **Continue to develop more efficient PC technology**
- **Work with Federal agencies to educate users on power management**



This report was underwritten by Hewlett-Packard

As a leader in global and corporate citizenship, HP is dedicated to addressing global environmental challenges and creating a sustainable future for all. Our environmental commitment is to reduce the impact of our products, services, and operations – thereby enabling both HP and our customers to operate more sustainably. We will continue to build partnerships with key stakeholders and communities; develop innovative technologies and business solutions; and balance the interests of our corporation with the needs of the environment.

With a deep commitment to environmental stewardship, HP is a member of:

The Green Electronics Council (GEC)-EPEAT™ Board of Advisors. GEC inspires and supports the effective design, manufacture, use, and recovery of electronic products to contribute to a healthy, fair and prosperous world.

For more information:

<http://www.hp.com/go/fedpower>

<http://www.hp.com/environment>