The Benefits of Higher Efficiency and Lower Heat

Energy efficiency in power supplies doesn't simply mean lower energy bills, it also means increased product reliability. Small increases in power supply efficiency can result in significant reductions in heat output – as much as 40%.

Heat Output Comparison of 80 PLUS™ vs. Less Efficient Power Supplies

Commodity 200W Power Supply

43 watts heat

143 watts AC → 100 watts DC

80 PLUS 200W Power Supply

25 watts heat

125 watts AC → 100 watts DC

Visit **www.80PLUS.org** for more program information.

80 PLUS® Certified Power Supplies Increase the Reliability of Desktop Computers and Servers

Run cool and reliable desktop computers and servers by specifying 80 PLUS in your computer system procurement process and reap the benefits of reduced heat output.

Reduced Heat Output:

- Increases computer system reliability by up to 40%, reducing costly repairs and lost worker productivity due to downtime.
- Reduces a building's cooling load, which further reduces electricity bills and creates a more comfortable work environment.
- Minimizes the need for noisy computer fans.

Why does heat pose problems for PC performance?

Heat is one of the leading causes of semiconductor failure, with semiconductor junction failure rates doubling for every 10 degrees Celsius rise in temperature. For this reason, power supplies with excess heat output are less reliable themselves and can lower the reliability of the entire computer. In fact, estimates by Power Electronics Strategies show that the improved power quality and lower operating temperatures of 80 PLUS qualified power supplies can increase reliability *by up to 40%* over conventional, non-power factor corrected power supplies. Considering that combined costs associated with IT repairs and lost productivity can exceed $100 per incident, 80 PLUS qualified power supplies offer corporations and large procuring organizations a way to prevent unwanted and costly downtime.

Additionally, the efficiency and power factor correction of 80 PLUS qualified power supplies further improves power supply reliability by reducing current stresses on electronic components. As shown in the figure to the left, a typical 80 PLUS qualified power supply draws roughly 13% less current than conventional lower efficiency, non-power factor corrected power supplies, minimizing stress on sensitive electronics.
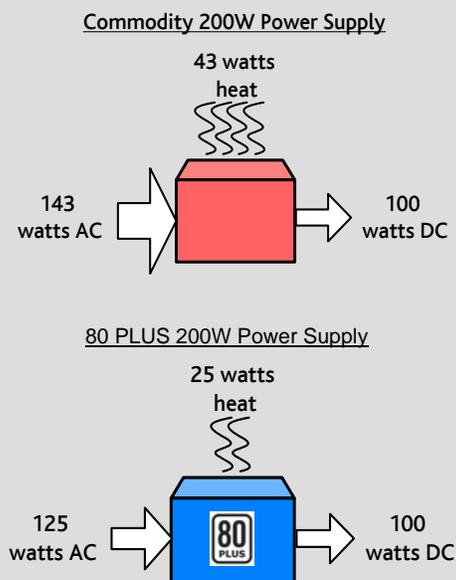
In sum, the efficiency and reliability of 80 PLUS qualified power supplies can help OEMs, system integrators and computer resellers:

- Reduce warranty costs
- Reduce service calls
- Market computers with a significantly lower total cost of ownership