

Case Study from December 2007 *Carbon Copy*

Advanced Micro Devices, Inc.

Advanced Micro Devices (AMD) pledges to reduce global GHG emissions by 33 percent per manufacturing index from 2006 to 2010. AMD achieved its initial goal by reducing global GHG emissions by 53 percent per manufacturing index from 2002 to 2006.

Advanced Micro Devices (NYSE: AMD) is a leading global provider of innovative processing solutions in the computing, graphics, and consumer electronics markets. AMD is dedicated to driving open innovation, choice, and industry growth by delivering superior customer-centric solutions that empower consumers and businesses worldwide.

Ensuring a Corporate Commitment

As a charter member of Climate Leaders since 2002, AMD has demonstrated a significant corporate-level commitment to managing its greenhouse gas (GHG) emissions. The company follows an international environmental health and safety policy, AMD Green, which integrates environmental considerations into every aspect of its business—from energy-efficient products and sustainable manufacturing and operations, to corporate leadership initiatives. Since 2001, AMD has published an annual Global Climate Protection Plan, which highlights its commitment, strategies, and progress in achieving its goals. AMD's Global Climate Protection Plan is available at www.amd.com/climate.

AMD designs multiple energy efficiency features into its products, which reduce the electricity use and GHG emissions associated with their use. AMD has introduced new microprocessors that significantly increase performance-per-watt by transitioning from dual-core to quad-core within the same power and thermal envelopes. A founding member of The Green Grid™, AMD works closely with companies across the IT spectrum, as well as with government authorities, such as the European Union Commission, the U.S. Environmental Protection Agency, the U.S. Department of Energy, and the New York State Energy Research and Development Authority, to identify solutions to the challenges faced by datacenter power and cooling demands.

Achieving the Climate Leaders Goal

AMD reduced its emissions through several measures, including the following:

- Increased manufacturing efficiency by implementing alternative chemistries and processes, optimizing processes, and abating process effluents.
- Applied best practices and lessons learned in the construction of new production facilities and only utilized low-PFC-emitting process technology.
- Partnered with tri-generation facilities so that two semiconductor fabrication plants (Fab) in Dresden, Germany, use waste heat from electricity production to generate heat and cooling.

AMD has been a leader in the reduction of PFC emissions associated with wafer fabrication, and was among the first businesses to join EPA's voluntary PFC Reduction Partnership for the Semiconductor Industry in 1996. In support of the World Semiconductor Council's worldwide reduction goal, AMD set a voluntary goal to reduce total PFC emissions by 50 percent by 2010 from a 1995 base year. AMD's 2006 PFC emissions were more than 95 percent below 1995 levels. For the design of its first state-of-the-art 300mm Fab, in Dresden, AMD integrated several cutting-edge best practices and lessons learned from the operation of its manufacturing facilities around the globe. Fab 36 has very low PFC and other GHG emissions, thanks in part to cleaning processes and abatement units that remain in standby mode when not in use, reducing electricity demand.

In 2005, the AMD Sunnyvale, California, facility applied a number of energy efficiency improvements, including installing variable frequency drives, new chillers, upgraded temperature control systems, and other heating, ventilation, and air conditioning (HVAC) adjustments, which saved 1,072 megawatt-hours (MWh) of electricity. The company also converted three existing process vacuum loops in a laboratory into a single loop, resulting in combined annual energy savings of 80 MWh.

Continuing the Commitment

AMD is continuing its climate commitment by setting a second Climate Leaders goal to reduce emissions intensity by 33 percent from 2006 to 2010. To meet this goal, AMD is implementing many cutting-edge efficiency projects. The new corporate campus in Austin, Texas, for which the company is seeking LEED® Gold Certification, has committed to operate using 100 percent green power from Austin Energy's GreenChoice program through 2015. AMD was an early member of the semiconductor industry to join EPA's Green Power Partnership, and received the Green Power Leadership award in 2002.

The new Austin campus incorporates numerous innovative energy-saving features, such as adjustable task lighting that reduces the need for overhead lighting, photosensors that automatically shut off lights, raised flooring that allows individual climate control, and roofs that collect rainwater for supplying the energy efficient cooling towers, as well as for irrigation. AMD is also planning to complete comprehensive energy audits at its North American corporate campuses in Austin, Silicon Valley and Markham, Ontario. As AMD converts its facility in Dresden into the 300mm Fab 38, it will upgrade the facility, by installing energy efficient exhaust ventilators, which will save about 40 MWh of electricity per year, and energy efficient vacuum pumps, which are expected to save about 175 MWh of electricity consumption annually.