GLOBAL CLIMATE PROTECTION PLAN - 2001

I INTRODUCTION

This "Global Climate Protection Plan 2001" outlines AMD's strategy to address global warming, defines goals for preventing global warming, and reports the corporation's progress towards meeting these goals. The Plan is reviewed and revised annually to keep pace with the rapidly evolving technology of semiconductor manufacturing and new opportunities for global climate protection.

II AMD'S COMMITMENT

AMD shares the views of most scientists that climate change with its related potential environmental impacts is an important global issue. We recognize that we need to take precautionary action to protect our global climate, which simultaneously helps to ensure our business future. We will take technically and economically feasible actions to reduce global warming gas emissions. Our commitment, strategies, and progress in achieving our goals will be reviewed annually at the executive level of the corporation.

The AMD Executive EHS Committee approved this commitment to global climate protection on February 20, 2001. This "Global Climate Protection Plan 2001" was reviewed and approved by the AMD Executive EHS Committee on June 1, 2001.

III STRATEGY

III.1 General Approach

AMD's greatest potential influence on global climate change is through changes in the manufacturing process and continued improvement in AMD product design. Greenhouse gas emissions associated with the manufacturing process are perfluorocompounds (PFCs) and carbon dioxide (CO_2). PFC emissions result directly from the use of these materials in manufacturing. CO_2 emissions are generated indirectly through the energy consumed during the manufacturing process. The relative share of total global warming manufacturing emissions of each of these emission categories is shown in Figure 1. When new manufacturing technologies are being developed, AMD assesses the environmental impacts of all materials involved. The global warming potential of these new materials is one of the environmental impacts evaluated. This early assessment of new materials enables AMD to take appropriate measures very early in manufacturing process development.

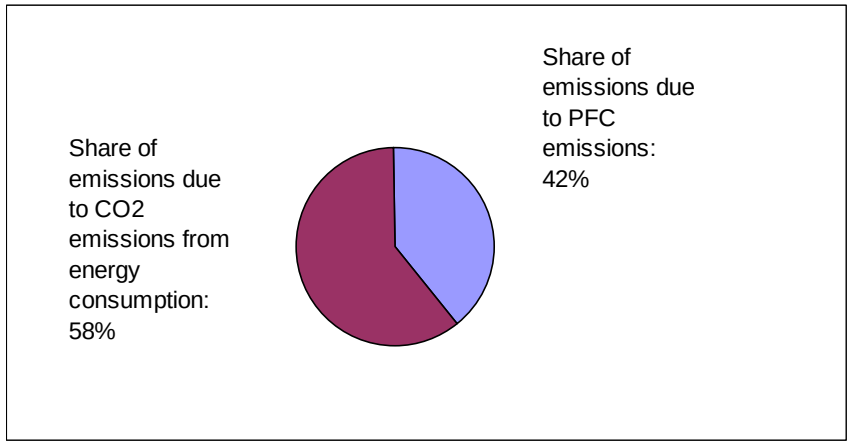


Figure 1: Share of total global warming emissions from AMD manufacturing activities in 2000 due to PFC emissions and CO_2 emissions associated with energy consumption

AMD's second potential influence on global climate change is through the electrical consumption of our products. Lower energy consumption during the use-phase of a product's life cycle will result in a reduced need for electrical generation and a corresponding reduction in CO_2 emissions.

Each AMD site must develop and implement strategies and programs to achieve the goals set out in this plan. In addition, foundries that manufacture AMD products are evaluated to ensure that they have strategies and objectives that are aligned with this Plan.

The final component of AMD's strategy is sharing climate change information with the public and our employees.

III.2 PFCs in Manufacturing

III.2.1 PFC Emission Reduction Goals

AMD plans to reduce absolute PFC emissions measured in MTCE (Metric Tons of Carbon Equivalents) by 50% by the year 2010 using 1995 as the baseline year.

This goal is being addressed using the following approaches:

- Process Optimization
- AlternativeChemistries/ Alternative Processes
- Recovery
- Abatement

III.2.2 PFC Emission Reduction Progress to Date

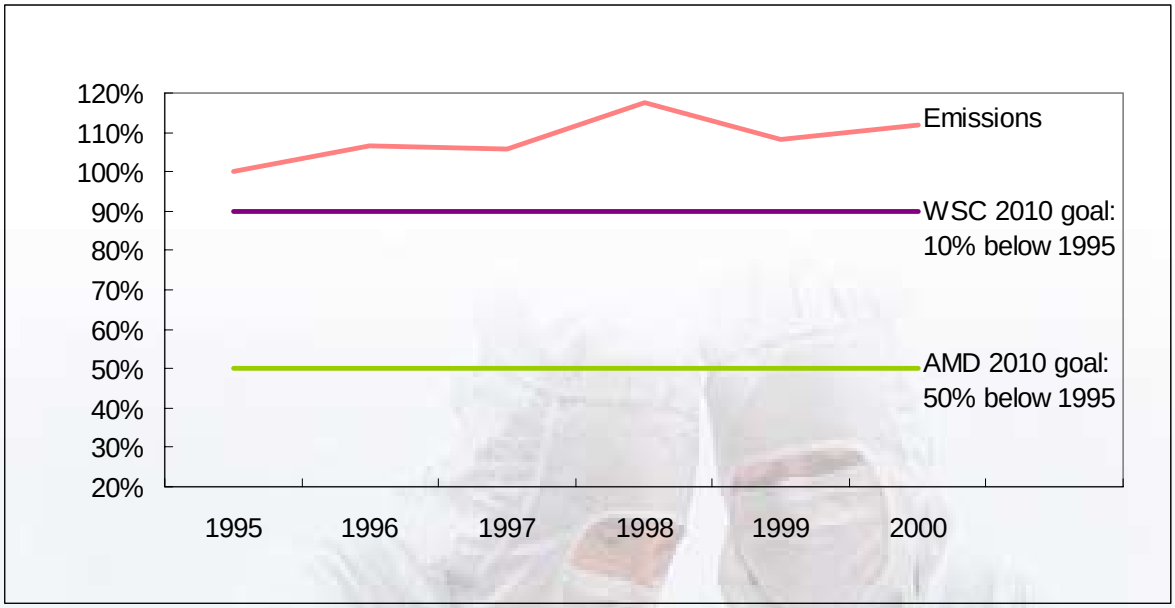


Figure 2. AMD PFC emissions levels – 1995 through 2000

Key projects and initiatives

AMD initiatives to decrease PFC emissions began in 1993 when AMD collaborated with Air Products and DuPont to measure PFC emissions. In 1995, AMD and other leading companies co-founded the PFC Leadership Group to encourage the primary suppliers of semiconductor manufacturing equipment to share the industry's PFC emission reduction goals. AMD was among the first companies to sign the initial Memorandum of Understanding with the US EPA in 1996, creating the voluntary "PFC Reduction Partnership for the Semiconductor Industry". AMD is also participating in the second EPA MOU, approved in 2001. AMD Saxony signed the first European Memorandum of Agreement in 1999 and the second in 2001. The current agreements support the World Semiconductor Council PFC emission reduction goal of 10% absolute reductions relative to 1995 MTCE emissions.

AMD has established a "New Technology Team" consisting of EHS staff members that evaluates new manufacturing materials to assess potential EHS risks. Technology researchers and developers from inside and outside AMD are invited to monthly meetings to update team members on new materials under consideration. The "New Technology Team" is AMD's key EHS management instrument to ensure that new materials having a significant global warming potential are identified early in the development process, so that appropriate emission reduction measures are taken as early as possible.

AMD's newest semiconductor manufacturing facility, Fab 30 in Dresden, was designed with special considerations for PFC emission reduction. At Fab 30, AMD applies manufacturing technologies, like remote NF_3 plasma clean, that reduce MTCE emissions by up to 99% compared to chamber-clean technologies used in 1995. With the application of point-of-use abatement for etch tools, total PFC MTCE emissions from etch processes amount to only 5% of typical 1995 manufacturing technologies.

III.3 Manufacturing Energy Consumption

III.3.1 Manufacturing Energy Reduction Goals

AMD's growth in manufacturing capacity is expected to continue into the foreseeable future. As this growth occurs, the company remains committed to designing energy efficient features into new facilities and actively promoting conservation measures at existing facilities. To compliment the strategy discussed in this plan, AMD has developed long-term goals for our wafer manufacturing operations. The goal is simply stated as follows:

By the year 2005, AMD will achieve a 15% reduction in normalized energy consumption. The reduction applies to total energy consumed at all wafer manufacturing sites, and will be normalized to wafer production. Energy will be expressed as metric tons of carbon equivalent emissions. The baseline year is 2000.

AMD plans to achieve this goal with a continued focus on site-specific energy conservation projects, sharing successes with other sites, increasing the amount of energy purchased from renewable sources, and using cleaner energy sources. Progress towards achievement of this goal will be tracked annually.

III.3.2 Manufacturing Energy Reduction Progress to Date

The following projects describe some key actions taken by AMD toward achieving the energy reduction goal previously outlined.

Dresden Energy Center

A specially designed cogeneration plant called the Dresden Energy Center supplies the entire electrical demand of AMD's newest facility, Fab 30, located in Dresden. The Dresden Energy Center began operating concurrently with the production ramp of Fab 30 in 1998.

During the first two years of operation, the cogeneration system achieved a total average energy-efficiency of approximately 71%, with maximum monthly efficiencies up to 83%. At full production capacity, the average efficiency is expected to reach 80%.

A comparable conventional system has an average energy-efficiency of about 52%, nearly 20% below the current efficiency level of the Dresden Energy Center.

Fab energy demands at full production would decrease the conventional solution's annual energy-efficiency to approximately 46%, making the cogeneration solution approximately 34% more efficient once the production ramp is complete.

The use of natural gas as the Dresden Energy Center's fuel supply has significant environmental benefits. Natural gas is the least carbon-intensive fossil fuel available. Consequently, CO_2 emissions are significantly reduced during electricity generation. The high energy-efficiency of the cogeneration system, as well as its use of natural gas, resulted in an average carbon emission factor that was 28% lower than the average emission factor for the conventional solution. As shown in Figure 3, over the last three years, AMD has avoided over 16,000 MTCE of greenhouse gas emissions. Avoided greenhouse gas emissions realized by the cogeneration system in the year 2000 amounted to 9,000 MTCE. Over the 15-year life of the contract, AMD expects to avoid 158,000 MTCE of greenhouse gas emissions.

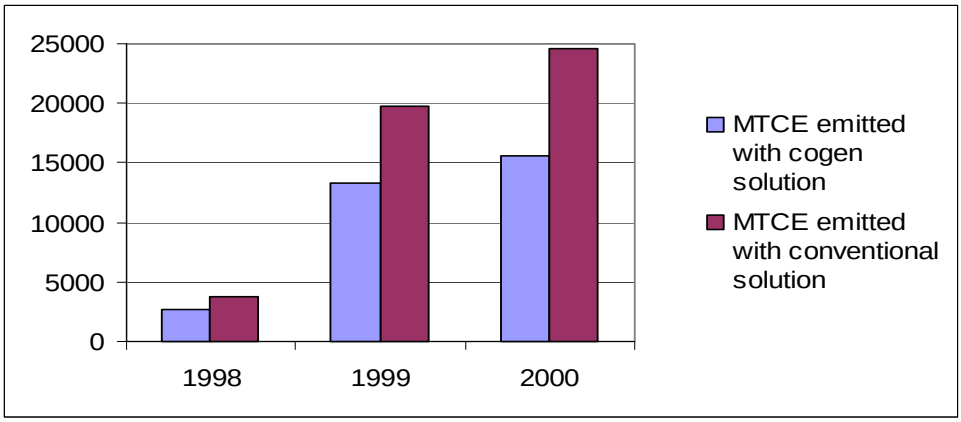


Figure 3: Global Warming Gas Emissions Avoided by the Dresden Energy Center

Bangkok Building Extension

AMD's Bangkok site currently consists of two buildings: the primary manufacturing plant and the Employee Development Center. In 2000, AMD began the construction of an extension to the Employee Development Center.

The new extension incorporates state-of-the-art energy-efficiency features into the building design (skylights, laminated glass, and roof insulation), lighting (occupancy sensors, lighting reflectors, electronic ballasts, and zoning controls), and air conditioning (high efficiency chillers, cooling towers, pumps, and air handling units). The extension will be completed during the first half of 2001.

Singapore New Building

AMD is currently constructing a new test and assembly building in Singapore. Energy saving and climate protection measures incorporated into the building design include:

an optimized central cooling tower and air conditioning system, energy-efficient lighting with electronic ballast and special reflectors and the use of Variable Speed Drive (VSD) motors in the compressed air, DI-water and exhaust systems. The energy efficient features are estimated to reduce consumption by 30% or approximately 5,700 megawatt-hours per year. This reduction equates to an emissions avoidance of approximately 980 MTCE.

Purchase of Energy from Austin Energy's Green Choice Program

AMD was one of the first companies to purchase renewable energy offered by a program through the Austin Energy's Green Choice Program. Through the program, AMD's Austin site pays a premium to purchase one million kilowatt-hours of electricity monthly from renewable sources. The energy is generated by a combination of landfill methane combustion, wind power, and solar power. This is enough energy to power 1,000 homes, and constitutes 15% of the total amount of green power flowing into Austin. Premium payments fund expansions of Austin Energy's solar fields, wind turbine plants, and landfill methane recovery operations.

III.4 Product Design

III.4.1 Product Power Consumption Reduction Strategy

AMD can significantly impact energy conservation during the product design phase. We consistently strive to design increasingly energy efficient products.

With millions of power consuming devices sold all over the world, energy-efficient products can make a substantial difference. Power management features are frequently requested by AMD customers; they provide environmental, as well as product performance benefits.

Energy-efficient products benefit the environment, and are preferred by AMD customers. For example, a low-power portable product requires a smaller battery, resulting in an overall smaller and lighter product; and a low-power micro-processor dissipates less energy and therefore has reduced cooling requirements, resulting in a less complex and less expensive cooling solution. Overall, low-power products are smaller, lighter, easier to cool and less costly to produce. AMD provides energy-efficient solutions for all product categories, and in many categories AMD is an industry leader.

III.4.2 Product Power Consumption Reduction Goals

AMD's goal is continuous reduction of power consumption and increasing power management capabilities for all new products.

III.4.3 Product Power Consumption Progress to Date

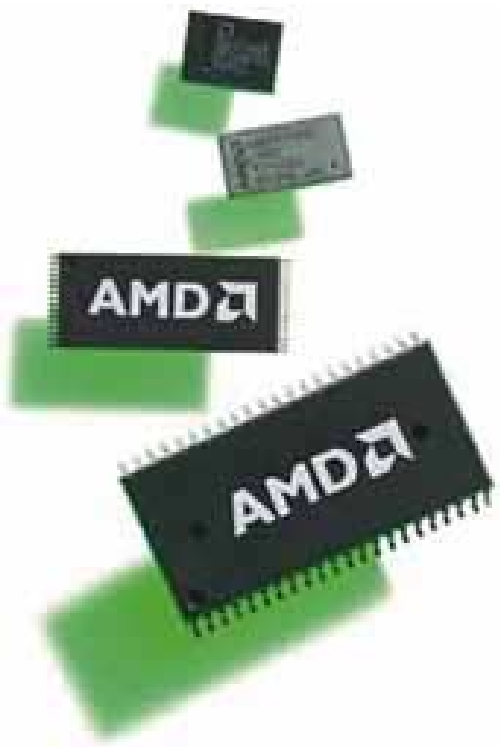
AMD designs and manufactures products with leading-edge power management technology. AMD microprocessors, chipsets, and Flash memory devices save energy, reduce energy bills, and also yield other important environmental benefits (e.g., decreased air pollution associated with energy production).

Flash Memory

AMD's Flash memory products are highly energy efficient and are used in portable electronic devices, set top boxes, PCs and peripherals, as well as automotive, telecom, and networking equipment. AMD's Low Voltage (LV) and Super Low Voltage (SL) Flash devices are the "Best in Class" for energy efficiency. These devices consume significantly lower amounts of energy than competing Flash memory products, and increase battery life.

For example, in program and erase modes, the 1.8 volt (V) AM29SL160C, used in devices such as digital cellular phones, consumes 36 milliwatts (mW). The amount of energy consumed in this mode is 33% less than competing products. In the read mode, the AM29SL160C consumes 9.0 mW of power, 44% less than competing products. In standby and auto sleep modes, the AM29SL160C consumes only 1.8 mW, 99% less than competing products.

Sleep and standby modes are critical to Flash memory power management because most portable products spend the majority of their time, up to 90%, in this mode. AMD's low voltage Flash draws only 200 nAmp in standby, a current so low that most test equipment cannot measure it.



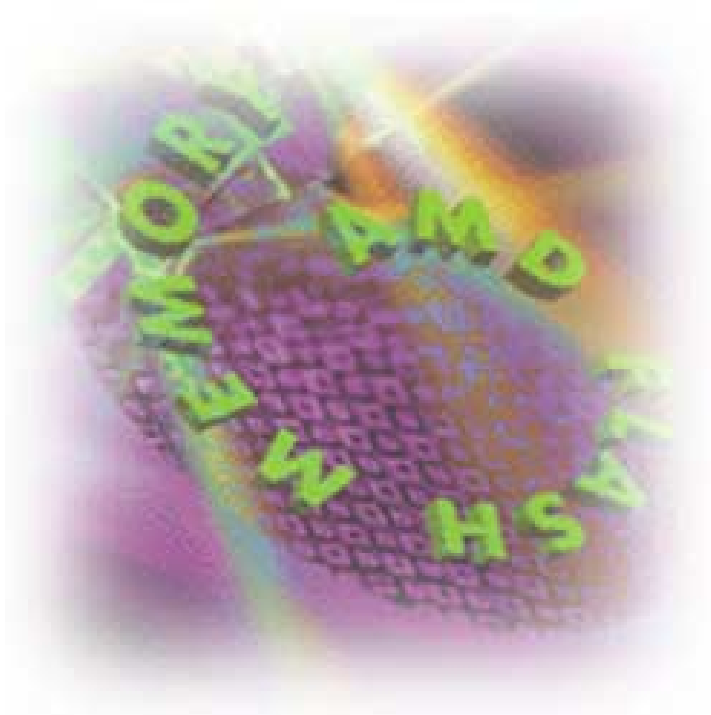
AMD's Flash products also allow customers to reduce the number of components used thereby increasing energy efficiency. For example, AMD's patented Simultaneous Read/Write technology, used in cellular phones, personal digital assistants and global positioning systems, allows customers to simultaneously read and write to one Flash memory device.

Prior to AMD's innovation, customers would have had to use two discrete Flash devices. AMD's high-density devices also reduce the need to use multiple low-density devices. The reduced number of devices not only increases system reliability but also reduces energy consumption.

AMD's Flash products offer a Zero Power Operation mode. This feature places devices into a near zero current consumption state automatically after very short periods (120 nanoseconds) of inactivity.
This extends battery life and allows designers to offer greater functionality in handheld and portable devices.

AMD's Super Low Voltage, High Performance Burst Memory technology enables increased system efficiency in applications ranging from cellular phones to automotive engine control systems. The AMD 64 Megabit AM29BDS643, introduced in 2000, has an industry-leading burst access time of 13.5 nanoseconds (nsecs), while the 32 Megabit AM29BDS323 has a burst access time of 20 nsecs. These devices allow microprocessors to operate at optimal performance levels by significantly reducing the number of wait states required to read code and data from Flash memory.

Prior to the introduction of these devices, manufacturers would have to use multiple interleaved Flash devices to obtain the same level of performance that one AMD's High Performance Flash device enables. The use of a single device increases reliability while reducing energy consumption. AMD's Burst Mode Flash technology is also used in automotive engine, transmission, and powertrain applications, to increase fuel efficiency and enhance passenger safety.



Microprocessors

AMD designs energy efficiency and power management capabilities into its microprocessors; nine of the top ten worldwide PC vendors sell AMD processor-based PCs. AMD products support the Advanced Configuration and Power Interface (ACPI) specification and the Energy Star Tier 2 computer specification. Use of the ACPI S3 (suspend to RAM) sleep state draws very little power and allows quick access. While in the ACPI S3 sleep state, PCs using AMD Athlon™ (PC-World's 2000 Product of the Year) or Duron™ processors will consume 15 watts or less (assuming a 200 watt power supply.) This is a 50% reduction from the sleep state power consumption of systems that do not support S3.

AMD's PowerNow!™ technology, introduced in 2000, is a power optimizing innovation that offers significant savings in power consumption in notebook PCs, small form factor desktop systems, and embedded applications including set top boxes, internet access devices, server appliances, point of sale terminals and telecommunications equipment. PowerNow! is a combination of software and hardware that automatically reduces the processor's voltage and frequency, allowing the processor to run at only the voltage and frequency required by the applications in use. For example AMD K6™-2+ processors with Power Now! operate at core voltages ranging from 1.4 to 2.0V with power consumption as low as 1W. This technology can extend the battery run time of notebook PCs by as much as 30 percent. Power consumption in embedded applications such as set top boxes can be reduced by up to 74%.

An innovative automatic feature is included in Power Now!. The automatic mode uses a lower voltage and frequency whenever possible, based on CPU utilization. Other technology uses a lower voltage and frequency only when battery-powered. Products with Power Now! can be shipped in the automatic mode.

AMD's latest chipset technology also allows for reduced PC energy consumption. In October 2000, AMD introduced its high performance AMD-760™ microprocessor chipset, the first commercially available PC computing platform supporting the energy-efficient Double Data Rate (DDR) memory technology. DDR memory increases peak data throughput to the processor by up to 100% when compared to Synchronous Dynamic Random Access Memory (SDRAM). Manufacturers of DDR memory have reported reduced power consumption of nearly 50% compared to SDRAM technology.

III.4.4 Product Recognition and Awards

In 2001, AMD received a Certificate of Recognition for Technical Innovation from EPA for its power management technology at the March 2001 Energy Star Awards. The certificate is the award mechanism for component manufacturers; reportedly, only two other companies have been awarded this certificate in the past six years.

In November 1999, Volkswagen awarded AMD their “Leading Edge 98 Award” for technology leadership in areas of low power consumption, high endurance, wide temperature ranges, and high reliability.

In 1997, AMD and Hewlett-Packard received the Energy Star award for best technological innovation from the U.S. Environmental Protection Agency (EPA) for the jointly developed Magic Packet™ technology which allows network administrators to remotely “wake up” a PC on a network for off-hours maintenance and then return the machine to the power-off mode.

IV EMPLOYEE EDUCATION

AMD educates employees on actions they can take in their daily lives to mitigate adverse impacts on the global climate. Using public transportation, carpooling, insulating homes, and turning off lights and computer monitors when they are not in use reduces energy use and resulting emissions of CO_2.

AMD Austin

In 2001, AMD Austin started the Commute Solutions Program.
Commute Solutions is a family of options that helps AMD and the Austin area by reducing the number of car trips each day and providing convenient and environmentally beneficial ways to get to work. Options include carpooling, vanpooling, public transit, clean air strategies, and alternative work arrangements. By providing benefits to participating employees, AMD Austin is encouraging employees to take advantage of Commute Solutions with the goal to reduce approximately 7,300 kilograms of nitrogen oxide emissions by the year 2004.

AMD Dresden

As a result of cooperative agreements between AMD and the Oberelbe Verkehrs-verbund (OVV) Dresden Region Public Transportation Services, AMD Dresden can be conveniently reached by public transportation from all key areas in the region.

In the year 2000, a fourth bus line was added to serve AMD Dresden directly.

AMD Dresden works with the OVV to identify and evaluate additional opportunities to provide benefits for employees using public transportation.

AMD Sunnyvale

AMD Sunnyvale is implementing a comprehensive program to educate employees on reducing energy consumption and corresponding global warming emissions. Employees are encouraged to participate in energy conservation efforts at work and at home. In the summer of 2001, AMD Sunnyvale employees will be eligible to win prizes for energy bills that show they used 10 to 20% less electricity than they did the previous year. AMD also distributed energy-efficient light bulbs while providing energy conservation tips for all employees via the Intranet. Additionally, AMD Sunnyvale has a Commute Alternatives Program that promotes use of alternative transportation such as buses, trains, and carpooling. Shuttle buses link AMD's Sunnyvale campus with several regional passenger rail lines.

V CONCLUSION

AMD is taking action to reduce greenhouse gas emissions in all areas relevant to our operations and products. AMD focuses on the reduction of PFC emissions from manufacturing activities and on the reduction of CO_2 emissions related to AMD's energy consumption. AMD has set a goal for a 50% absolute reduction in PFC emissions by the year 2010 relative to a 1995 baseline, and a goal of 15% reduction in energy consumption by 2005 for our wafer fabrication sites normalized to wafer production using the year 2000 as a baseline.

To reduce CO_2 emissions related to our energy consumption, AMD has already implemented numerous measures including purchasing electricity from renewable sources, using a very efficient cogeneration plant, improving energy-efficiency in existing facility systems, and including energy-efficiency features in new building projects. AMD also contributes to climate protection by designing energy-efficient products, resulting in lower emissions from electricity consumed during the product's useful life. AMD works together with its employees to encourage them to take actions in their daily lives to reduce energy consumption. This includes addressing employee transportation and energy conservation measures at home. AMD will continue to seek out economically and technically feasible opportunities to reduce impacts on the global climate.