Case Study from December 2007 *Carbon Copy*

Roche Group U.S. Affiliates

Roche Group U.S. Affiliates pledges to reduce total U.S. GHG emissions by 15 percent from 2001 to 2010. Roche Group achieved its initial goal by reducing total U.S. GHG emissions by 11 percent from 2001 to 2006.

Roche Group, one of the world's top 10 pharmaceutical companies, is a global market leader in diagnostics and a leading supplier of prescription medicines in selected therapeutic areas such as oncology, virology, and transplantation. Roche's U.S. operations mirror the global Roche Group's focus on both diagnostics and pharmaceuticals, which address the prevention, diagnosis, and treatment of disease.

Ensuring a Corporate Commitment
A member of EPA Climate Leaders since 2004, the Roche Group's participation in the Climate Leaders program is just one component of the company's strong commitment to the principles of sustainable development.

Roche Group's approach to sustainable development includes the establishment of energy and GHG reduction policies, goals, and directives at the corporate level. Actual implementation is more decentralized, with local site personnel empowered to drive reductions based on optimal solutions for each individual site. Roche's director of energy management provides technical and management support to each of the sites. In addition, mechanisms for sharing best practices among sites, including annual "energy summit" meetings, leverage the benefits of project successes and challenges.

Achieving the Climate Leaders Goal
The Roche Group significantly reduced its emissions when the company replaced two combustion turbine generators with new, more efficient combustion turbine generators in the cogeneration plant at Roche's Nutley, New Jersey, facility. As a result, the site has increased electricity and steam production with lower fuel consumption, resulting in an annual reduction of approximately 10,000 tons of GHGs annually.

Other capital investments have been made to improve efficiency, specifically in chiller and hot water plants:

- The Nutley site is served by two central chilled water plants containing almost 20,000 tons of chiller capacity. Several projects have resulted in overall improved chilled water plant efficiencies, including the installation of a water-side economizer, which has completely eliminated the need for mechanical refrigeration when ambient temperatures are below 40 degrees Fahrenheit.
- Also at Nutley, the company installed the interconnection of the two chilled water distribution systems, which allowed for optimal chiller dispatch, more effective chiller loading, and reduced pumping horsepower.

- At the company's Palo Alto, California site, Roche reduced its chilled and hot water plant electricity consumption by more than 50 percent, through improvements such as replacing old units with energy efficient units equipped with variable speed controls and adding an automation system to reduce equipment operating hours.

In addition to capital infrastructure projects, Roche Group has taken steps to improve the efficiency of the company's buildings:

- At three of its sites, Roche Group retro-commissioned buildings and installed control systems and alarms. These projects have resulted in significant improvement in building energy efficiency and comfort, at very low cost.
- Most Roche facilities made improvements to building automation systems. These improvements included nighttime setbacks, economizer cycles, and building controls that allowed for trending reports for evaluating future energy efficiency projects.
- As is common at research-based pharmaceutical sites, Roche laboratory HVAC systems typically use 100 percent outside air to ensure the air quality of laboratory spaces. Conditioning once-through supply air requires a large amount of energy, so several Roche facilities have implemented projects to safely reduce the amount of air and energy required at the laboratories. These projects have included equipment upgrades to provide variable air flow through fume hoods and/or general exhaust, reduced air changes to match space requirements, and off-hour ventilation reductions.
- At several Roche facilities, the company upgraded lighting systems by replacing T12 fluorescent fixtures with T8 and T5 fixtures, replacing high-intensity discharge lights with high-bay fluorescent fixtures, and placing stickers on lighting switches to alert cleaners and security personnel to turn off unnecessary lighting after hours.
- Roche Group installed cool roof coatings on buildings at the Pleasanton and Palo Alto, California, sites.

Employee energy reduction opportunities extend to every facet of the company's operations. Sales personnel have been encouraged to use hybrid vehicles or the most fuel-efficient vehicles when hybrids are not available. Approximately 20 percent of the fleet is composed of hybrid cars, and more fuel efficient vehicles are being phased in as vehicles are replaced.

Continuing the Commitment

In an effort to reduce future energy needs and GHG emissions, Roche Group is working to integrate energy efficiency into new construction projects. For the company's existing facilities, both retro-commissioning and continuous commissioning efforts will continue.