

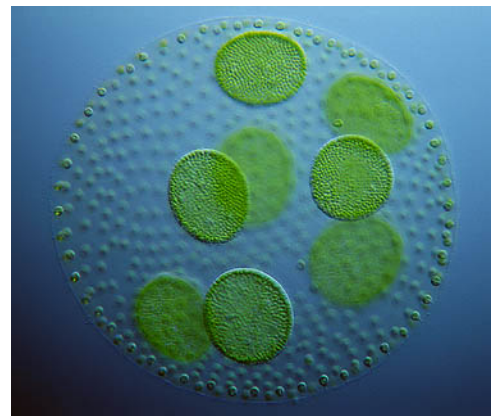


EXAMPLES OF WSPA MEMBER COMPANY GREENHOUSE GAS EMISSION REDUCTION PROGRAMS AND PROJECTS

Many of WSPA's member companies are voluntarily reducing emissions in low-cost, common-sense ways, developing new technologies to ensure future progress, and investing billions of dollars in climate research.

RENEWABLES

- Chevron Corporation and the U.S. Department of Energy's National Renewable Energy Laboratory (NREL) have entered into a collaborative research and development agreement to study and advance technology to produce liquid transportation fuels using algae.
- Shell's wind farm near Palm Springs displaces 85,000 tons of carbon dioxide every year and meets the electricity needs of 11,000 households. Shell's 980 watt solar electric power system at the Semitropic Water Storage District in Wasco, CA saves 1,729,000 kw hours a year and avoids 1,763,000 pounds of CO₂ annually. Shell is also investing in advanced biofuel processing technologies.
- BP Solar announced plans to double its capacity from around 90MW to 200MW by 2006. In California, BP's Solar Home Solutions package is now sold at Home Depot. BP is also focused on the development of 'wind farms' at existing BP refineries and petrochemical sites, and is investing in research and development of advanced biofuels.
- Chevron has completed installation of the first solar photovoltaic facility in California to help power oil field operations. At 500 kilowatts, the demonstration project is one of the largest photovoltaic installations in the United States and the largest array of flexible, amorphous-silicon solar technology in the world. Chevron is focused on geothermal, hydrogen, biofuels and advanced batteries as well as wind and solar technologies. Chevron recently teamed with San Jose Unified School District and Bank of America to establish solar photovoltaic arrays at several schools. The company has also teamed with western cities to convert kitchen grease and wastewater sludge to biogas that powers wastewater treatment plants.
- ConocoPhillips announced a partnership to convert animal fat from Tyson Farm's rendering facilities to renewable diesel fuel that helps produce lower life-cycle carbon emissions. The company has also teamed with Archer Daniels Midland Company to develop advanced biofuels.



CONSERVATION AND ENERGY EFFICIENCY

Conservation and the efficient use of energy are critically important because they help reduce growth in demand to keep energy affordable and reduce greenhouse gas emissions. WSPA companies are doing their share to conserve energy.

- ExxonMobil Chemical and ExxonMobil's Japanese affiliate, Tonen Chemical, have developed new film technologies for lithium-ion batteries with the potential to improve the energy efficiency and affordability of next generation hybrid and electric vehicles. These new film technologies are expected to significantly enhance the power, safety and reliability of lithium-ion batteries, thereby helping speed the adoption of these smaller and lighter batteries into the next wave of lower-emission vehicles.



- Valero is implementing the latest control technology to improve combustion efficiency at refineries nationally. That new technology will reduce CO2 emissions by 1.8 million tons per year by approximately 2008. Project upgrades at its Benicia and Wilmington refineries will decrease CO2 emissions by more than 140,000 tons per year.
- Tesoro installed two state-of-the-art flare gas compressors at its Golden Eagle Refinery in Concord. This equipment takes flare gases – hydrogen, nitrogen, methane and other hydrocarbons – compresses them and returns them to the refinery for use as fuel. This project reduced flaring by 90 percent, which in turn reduced flare emissions by 94 percent. At its Salt Lake City Refinery, Tesoro's cogeneration operation (using natural gas to generate both electricity and steam), reduces emissions at that facility by more than 500 tons each year.
- Aera's cogeneration facility in the San Joaquin Valley combines electric power production with oil production. It produces 315 megawatts of electricity, enough power for 160,000 households while reducing greenhouse gas emissions.
- Energy efficiency measures at BP helped reduce operational greenhouse gas emissions by 2.5 million metric tons in 2006. BP's cogeneration project at its Texas City refinery realized a 250,000 ton reduction in greenhouse gas emissions in its first 12 months of full operations.
- Shell reduced its greenhouse gas emissions by 7 million tons in 2006 from the previous year. Shell's Oil Products and Chemicals businesses committed to undertake energy efficiency projects at their 40 major facilities by 2008. In Nigeria, for example, refinery operations run by Shell and partners have invested more than \$2 billion and have reduced gas flare volumes by almost a third already.
- Since 1986, Occidental has invested in the construction of several highly efficient cogeneration facilities to produce electric power and steam. This doubled energy efficiency over traditional power production while reducing carbon dioxide emissions by almost four million metric tons at full utilization.



- ExxonMobil's worldwide energy efficiency plan has reduced greenhouse gas emissions by about 8 million tons since 2001, resulting in a reduction in carbon emissions equivalent to removing 1.5 million U.S. cars from the road. In addition, ExxonMobil's 100 cogeneration facilities have reduced greenhouse gas emissions by 10.5 metric tons in 2004 and 2005.
- ConocoPhillips cogeneration plants in Europe and the United States save energy and reduce emissions. Its newest cogeneration plant uses up to 20% less energy while cutting carbon dioxide emissions by 3 million tons a year.
- Chevron participates in cogeneration projects that, together, produce enough electricity to power more than 1 million homes. For example, two cogeneration facilities in Kern County, California, with high generating efficiencies, provide 600 megawatts of electricity while emitting substantially less carbon dioxide than conventional gas-fired simple-cycle power plants. At the U.S. Postal Service's Processing and Distribution Center in West Sacramento, California, Chevron's Energy Solutions Division completed a number of energy-efficient upgrades, including the nation's largest nonmilitary federal solar power installation. These improvements are expected to reduce the facility's power use by more than one third.

IMPROVING THE EFFICIENCY OF EXISTING TECHNOLOGY

Continuous progress in reducing smog-forming emissions from the internal combustion engine has been a phenomenal success story.

- California's cleaner-burning gasoline reduced smog-forming and carbon monoxide emissions by one billion pounds a year, the equivalent of taking 3.5 million cars off the road.
- California's cleanest internal combustion engine cars known as the SULEV (Super Ultra Low Emission Vehicles), are as clean or cleaner than hybrids with smog-forming emissions almost below detection limits.
- ExxonMobil in partnership with Toyota and others is exploring new approaches to traditional internal combustion engine (ICE) technology. Better understanding of fuel chemistry and combustion could lead to 30% better fuel efficiency and a corresponding reduction in smog-causing emissions and carbon dioxide.

HYDROGEN

Hydrogen is a chemical element that carries energy and can be stored in either liquid or gaseous form. When combined with hydrogen fuel cells it can generate electricity with far less emissions than other means of production.

- Several WSPA members including BP, Chevron and Shell are also members of the California Fuel Cell Partnership, a private-public consortium to overcome the difficult technological challenges in making hydrogen fuel cells.
- ConocoPhillips is working with other private companies in California to develop a hydrogen infrastructure in California, by testing multiple approaches to producing hydrogen and providing infrastructure at 24 fueling stations throughout the state.
- Chevron is working with the AC Transit District in Oakland to design and build a state-of-the-art hydrogen fueling station.

PROMISING NEW TECHNOLOGIES

- **Decarbonized Fuel:** The BP Carson Hydrogen Power project is designed to generate much-needed electricity, and to reduce greenhouse gas emissions by capturing carbon dioxide and storing it safely and permanently. Every day, it will transform about 5,000 tons of petroleum coke – a by-product of the refining process – into hydrogen and carbon dioxide. The hydrogen gas will be used to fuel a power station capable of providing the California power grid with 500 MW of low-carbon electricity – enough to power about 325,000 southern Californian homes. At the same time, about 4 million tons of carbon dioxide a year will be captured, then transported by pipeline to the California oil fields and stored in oil reservoirs thousands of feet below the surface, where it will flush out oil that can't be reached [cost-effectively] in any other way.
- **Coal Gasification:** This process converts coke or coal synthetic gas to hydrogen which in turn can be used as a fuel for electric power plants. ConocoPhillips demonstrated this technology on the Wabash River in Indiana where it succeeded in generating electricity which produced emissions far below U.S. Clean Air Act standards with negligible particulate matter levels and a 20% reduction in carbon dioxide.
- **Carbon Sequestration:** Capturing and “sequestering” carbon dioxide in geologic formations has the potential to mitigate CO2 emissions associated with combustion of fossil fuel resources.



RESEARCH PROJECTS

- The mission of The Global Climate and Energy Project (GCEP) at Stanford University is to conduct fundamental research on technologies that will permit the development of global energy systems with significantly lower greenhouse gas emissions. It receives financial support from ExxonMobil, General Electric, Schlumberger, and Toyota.
- The CO2 Capture Project, is a global collaboration formed to research and develop technology to reduce greenhouse gas emissions. Its members include BP, Chevron, ConocoPhillips, U.S. Department of Energy and the European Union.
- Occidental is partnering with the U.S. Environmental Protection Agency through its Star program to evaluate, implement and report on cost-effective programs to reduce methane gas emissions.

- Chevron announced a Biofuels Alliance with Weyerhaeuser to research and develop technology to transform wood fiber and other nonfood sources of cellulose into biofuels for cars and trucks.
- BP and The California Institute of Technology have teamed up in a multi-million dollar research program that could open the door to a radical new way of producing solar cells, making the cost of solar electricity more competitive and increasing current efficiency levels. BP also announced it will partner with UC Berkeley and the Berkeley National Laboratory to establish a new Energy Biosciences Institute.
- Chevron, ConocoPhillips and Shell are founding members of the Colorado Center for Biorefining & Biofuels (C2B2) an academic-industry collaboration formed to pursue alternative energy and raw materials. The Center was established this year.

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