


Environmental Science in Context

Placing the most-talked-about issues in context



NEW TITLE  From global warming and carbon footprints to the emerging “green” revolution, environmental issues are among the most discussed contemporary topics around the globe. But filtering out the polemics and politicization surrounding these issues can often be difficult. *Environmental Science in Context* was created specifically to provide a comprehensive overview of the science behind environmental

issues as well as exploring their connection to current events, legal issues and political science.

Covers 245 major topics in the environmental sciences

Written by a team of international scholars and experts, *Environmental Science in Context* covers the complete range of fields related to environmental sciences, from physics, geology and earth science, to sociology, law and politics. This full-color set, written in language accessible to students and researchers, covers 245 topics in the environmental sciences in detail while also discussing the long-term effects of these issues on health and industry in countries around the world. In addition, this cross-curricular set provides unbiased overviews of the history, politics and ethical debates related to environmental issues.

Gale's In Context Series

Our new *In Context* series provides comprehensive information on such issues as climate change, scientific thought and infectious diseases. Written by international experts in the field, these cross-curricular sets are specifically written for students at the high school level and above, as well as for general researchers, making complex issues easy to understand. Each full-color set includes hundreds of detailed entries; tables, photographs and illustrations; sidebars highlighting related issues; glossaries of terminology; bibliographies; and much more.

Topics in *Environmental Science in Context* include:

- Arctic Darkening
- Biodiversity
- Climate Change
- Coral Reefs
- Epidemiology
- Fossil Fuel Combustion
- Freshwater Preservation
- Genetically Engineered Food
- Human Population Impact
- Insect Studies
- International Environmental Law
- International Polar Year
- Landscape Evolution
- Local and Global Remediation Efforts
- Natural Disasters
- Nature and Animal Conservation
- Recycling
- Testing Standards
- Waste Water Treatment Technologies
- Weather and Climate
- And hundreds more

Aligned with national and states standards

Environmental Science in Context supports critical thinking about complex issues and the profound cultural connection between science and its impact on daily life in an interconnected, truly global world. The set aligns with national and state science and social studies standards and supports curricula across disciplines in science and the humanities. Additional features include: a preface; a timeline including significant events in the history of scientific thought and the advancement of science; 300 full-color photographs, illustrations, maps and tables; a “Words to Know” glossary; a detailed bibliography featuring books, periodicals, Web sites and multimedia materials to consult for further information; and a comprehensive index.


Environmental Science in Context is also available in digital eBook format through the *Gale Virtual Reference Library*, allowing 24/7 access and full searchability. Contact your Gale Representative for details.

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Hybrid Vehicles

WORDS TO KNOW

BATTERY: Device that can easily convert stored energy in the chemical bonds of an electrolyte into electrical energy.

FOSSIL FUEL: Hydrocarbon fuel that has been obtained from the death and decay of living matter millions of years ago.

INTERNAL COMBUSTION ENGINE: An engine that relies on the chemical energy released during the combustion of a fuel to create power.

this program was the Toyota Prius, which was introduced to the Japanese market in advance of the 1997 Kyoto meeting on climate change. In the first year of production, Toyota sold 18,000 Priuses. In the same year, Audi introduced a mass-market version of its Duo in Europe, however it was not a commercial success.

In 2002, Honda introduced the Civic Hybrid. The Toyota Prius II won Car of the Year at the *Motor Trend Magazine* auto show. The first American produced hybrid was the Ford Escape Hybrid introduced in 2004. By 2008, there were at least a dozen hybrid vehicles commercially available indicating the growing popularity of the vehicle with the mass market.

■ **Impacts and Issues**

Hybrid vehicles have grown in popularity as the public has become aware of the impact of tailpipe emissions on air quality and on climate change. Cars typically emit numerous forms of pollution. In the United States, automakers are required to meet Corporate Average Fuel Economy (CAFE) standards. These laws dictate the average gas mileage for new cars sold. The 2008 standards dictate that the average gas mileage of cars sold needs to be 27.5 mpg. If an automobile producer sells a hybrid that gets 60 mpg, the automobile maker can then sell several cars that get less than 27.5 mpg.

Hybrid car sales have also increased in response to a relatively strict emissions standards limit on tailpipe emissions in states like California. Failure to comply with tailpipe emissions standards requires car owners to install emissions scrubbing devices on their cars. A car that burns more gas will emit more emissions. Because hybrid cars burn less gas per mile, they fit easily within California standards.

■ **Primary Source Connection**

The following news article reports on the movement some delivery companies such as Coca-Cola are taking toward using hybrid trucks to transport their merchan-

disc. The pressure for vehicle owners to cut greenhouse-gas emissions has many businesses making a green transition that, although expensive to start, is paying off through an environmentally friendly reputation and the long-term cost cut of using less gasoline.

DELIVERY COMPANIES SWITCH TO HYBRIDS

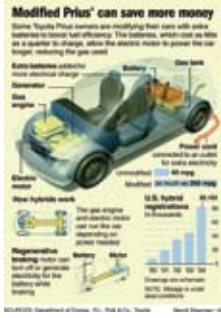
Every day, Coca-Cola trucks slowly weave their way through New York traffic, eventually stopping at up to 18 grocery stores, restaurants, and bodegas. As a truck makes a delivery, the engine idles, burning fuel and spewing fumes.

But as of Wednesday, Coca-Cola Enterprises started to do things differently in New York. It is using hybrid delivery trucks, which operate just like the cars, using a combination of batteries and horsepower. When the trucks are unloading, there will be no fumes and idling diesel engines.

Instead, the shiny new red-and-white trucks will have 32 percent better fuel economy. And the hybrids' green-


Modified Prius can save more money

Some Toyota Prius owners are modifying their cars with solar panels to lower fuel efficiency. The batteries, attached to the car as a quarter in charge, allow the electric motor to power the car during the gas wait.



Graphically explains the Toyota Prius and talks about how some people are modifying their cars for even better gas mileage. AP image.

Hybrid Vehicles



In May 2007, New York Mayor Michael Bloomberg announced that the city's fleet of yellow cabs would go entirely hybrid within five years, and all new taxis will have to meet emissions and mileage standards by 2008. AP image.

louse-gas emissions will be 90 percent less than those from regular trucks, according to the manufacturer of the new vehicle.

"It's a small step, but it's one of those steps that if we keep taking, we will be leaving a better world for our kids," says Mayor Michael Bloomberg.

Coca-Cola's transition to hybrid trucks is part of a push by urban delivery companies to cut their greenhouse-gas emissions. As with the hybrid cars, demand for the green trucks is so strong that companies such as Coca-Cola are willing to pay a 35 to 40 percent premium over the cost of a normal delivery truck. Both FedEx and UPS are also building hybrid fleets in urban areas. In return, the companies cut their fuel consumption.

"You get a return on the investment, but more importantly, it's the right thing to do," says John Brooks, president of Coca-Cola Enterprises in an interview at the company's giant distribution center in the South Bronx.

Environmental groups, who have pressed for cleaner air to deal with various health issues, are pleased to see the shift. The Coca-Cola distribution center, for one, is in a heavy industrial area with many trucks on the road. Medical testing has found high rates of asthma among local residents.

"That area has some of the nation's highest asthma rates, so looking for ways to reduce vehicle emissions is good," says Jason Babbie, senior environmental policy analyst at NYPFRG, a nonprofit policy lobbying group in Albany. "This is definitely a positive step."

Groups trying to promote corporate responsibility think it's a good example as well. "It's managing a regulatory risk," says Allison Hammont of the Climate Group, which tries to get businesses and government to work together on climate issues. "There is going to be a price on carbon, the cost of energy is going to go through the roof, and for some companies, it will catch them by surprise." Cutting down on greenhouse-gas emissions in urban areas is considered an important step in slowing climate change, since urban areas account for as much as 80 percent of the gases. "It's where you can make the biggest difference," says Mr. Hammont, who is based in New York.

Shifting over to the hybrid delivery trucks could be one way to cut down on emissions. For example, the average Coca-Cola truck in New York logs 44,000 miles a year on the city's streets. Because of traffic, it frequently does not get above 30 miles per hour, which is hardly fuel efficient. "This really is a big deal," says Mr. Bloomberg, who has his own plan to dramatically reduce New York's greenhouse-gas emissions.

UPS, with one of the largest truck fleets in the nation, has purchased 50 hybrids for short-haul deliveries. It estimates that on an annual basis, it will save 44,000 gallons of fuel and will cut emissions by 457 metric tons of carbon dioxide. FedEx is also operating 75 hybrids for short hauls.

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