

ENVIRONMENT[®]

SCIENCE AND POLICY FOR SUSTAINABLE DEVELOPMENT



GREEN MARKETING MYOPIA



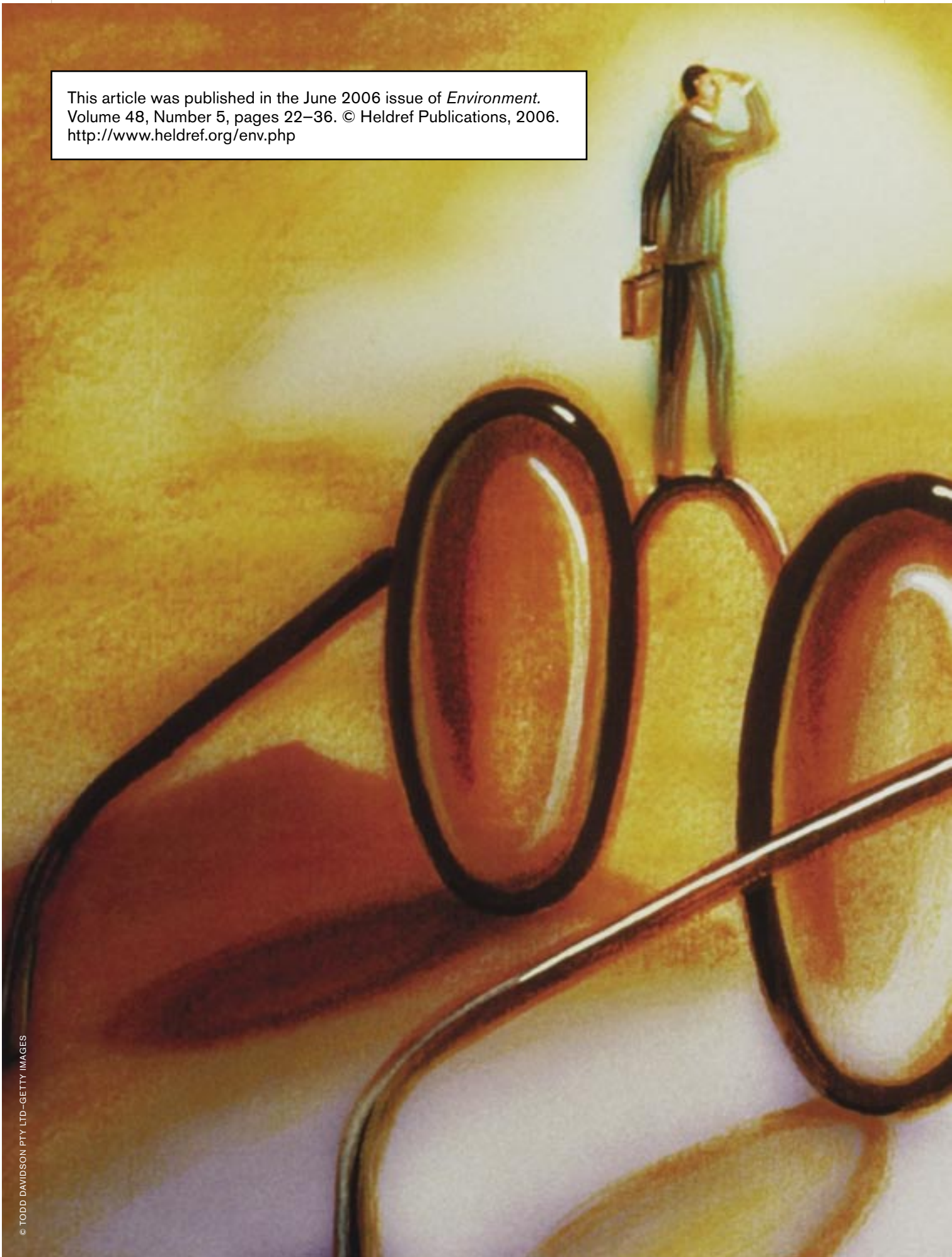
0 74 820 64645 8

JUNE 2006

VOLUME 48, NUMBER 5

\$5.00 U.S., \$6.50 CANADA

This article was published in the June 2006 issue of *Environment*.
Volume 48, Number 5, pages 22–36. © Heldref Publications, 2006.
<http://www.heldref.org/env.php>



IN 1994, Philips launched the “EarthLight,” a super energy-efficient compact fluorescent light (CFL) bulb designed to be an environmentally preferable substitute for the traditional energy-intensive incandescent bulb. The CFL’s clumsy shape, however, was incompatible with most conventional lamps, and sales languished. After studying consumer response, Philips reintroduced the product in 2000 under the name “Marathon,” to emphasize the bulb’s five-year life. New designs offered the look and versatility of conventional incandescent light bulbs and the promise of more than \$20 in energy savings over the product’s life span compared to incandescent bulbs. The new bulbs were also certified by the

AVOIDING GREEN MARKETING MYOPIA

WAYS TO IMPROVE CONSUMER APPEAL

FOR ENVIRONMENTALLY PREFERABLE PRODUCTS

**by Jacquelyn A. Ottman,
Edwin R. Stafford,
and Cathy L. Hartman**

U.S. Environmental Protection Agency's (EPA) Energy Star label. Repositioning CFL bulbs' features into advantages that resonated with consumer values—convenience, ease-of-use, and credible cost savings—ultimately sparked an annual sales growth of 12 percent in a mature product market.¹

Philips' experience provides a valuable lesson on how to avoid the common pitfall of "green marketing myopia." Philips called its original entry "EarthLight" to communicate the CFL bulbs' environmental advantage. While noble, the benefit appealed to only the deepest green niche of consumers. The vast majority of consumers, however, will ask, "If I use 'green' products, what's in it for me?" In practice, green appeals are not likely to attract mainstream consumers unless they also offer a desirable benefit, such as cost-savings or improved product performance.² To avoid green marketing myopia, marketers must fulfill consumer needs and interests beyond what is good for the environment.

over foreign oil dependency, and calls for energy conservation are creating business opportunities for energy-efficient products, clean energy, and other environmentally-sensitive innovations and products—collectively known as "cleantech"⁵ (see the box on page 26). For example, Pulitzer Prize-winning author and *New York Times* columnist Thomas L. Friedman argues that government policy and industry should engage in a "geo-green" strategy to promote energy efficiency, renewable energy, and other cleantech innovations to help alleviate the nation's dependency on oil from politically conflicted regions of the world.⁶ Friedman asserts that such innovations can spark economic opportunity and address the converging global challenges of rising energy prices, terrorism, climate change, and the environmental consequences of the rapid economic development of China and India.

To exploit these economic opportunities to steer global commerce onto a more sustainable path, however, green products

either succeeded or failed in the marketplace over the past decade, some important lessons emerge for crafting effective green marketing and product strategies.¹⁰ Based on the evidence, successful green products are able to appeal to mainstream consumers or lucrative market niches and frequently command price premiums by offering "non-green" consumer value (such as convenience and performance).

Green Marketing Myopia Defined

Green marketing must satisfy two objectives: improved environmental quality and customer satisfaction. Misjudging either or overemphasizing the former at the expense of the latter can be termed "green marketing myopia." In 1960, Harvard business professor Theodore Levitt introduced the concept of "marketing myopia" in a now-famous and influential article in the *Harvard Business Review*.¹¹

GREEN MARKETING MUST SATISFY TWO OBJECTIVES: IMPROVED ENVIRONMENTAL QUALITY AND CUSTOMER SATISFACTION.

Although no consumer product has a zero impact on the environment, in business, the terms "green product" and "environmental product" are used commonly to describe those that strive to protect or enhance the natural environment by conserving energy and/or resources and reducing or eliminating use of toxic agents, pollution, and waste.³ Paul Hawken, Amory Lovins, and L. Hunter Lovins write in their book *Natural Capitalism: Creating the Next Industrial Revolution* that greener, more sustainable products need to dramatically increase the productivity of natural resources, follow biological/cyclical production models, encourage dematerialization, and reinvest in and contribute to the planet's "natural" capital.⁴ Escalating energy prices, concerns

must appeal to consumers outside the traditional green niche.⁷ Looking at sustainability from a green engineering perspective, Arnulf Grubler recently wrote in *Environment*, "To minimize environmental impacts by significant orders of magnitude requires the blending of good engineering with good economics as well as changing consumer preferences."⁸ The marketing discipline has long argued that innovation must consider an intimate understanding of the customer,⁹ and a close look at green marketing practices over time reveals that green products must be positioned on a consumer value sought by targeted consumers.

Drawing from past research and an analysis of the marketing appeals and strategies of green products that have

In it, he characterized the common pitfall of companies' tunnel vision, which focused on "managing products" (that is, product features, functions, and efficient production) instead of "meeting customers' needs" (that is, adapting to consumer expectations and anticipation of future desires). Levitt warned that a corporate preoccupation on products rather than consumer needs was doomed to failure because consumers select products and new innovations that offer benefits they desire. Research indicates that many green products have failed because of green marketing myopia—marketers' myopic focus on their products' "greenness" over the broader expectations of consumers or other market players (such as regulators or activists).

For example, partially in response to the 1987 Montreal Protocol, in which signatory countries (including the United States) agreed to phase out ozone-depleting chlorofluorocarbons (CFCs) by 2000, Whirlpool (in 1994) launched the “Energy Wise” refrigerator, the first CFC-free cooler and one that was 30 percent more efficient than the U.S. Department of Energy’s highest standard.¹² For its innovation, Whirlpool won the “Golden Carrot,” a \$30 million award package of consumer rebates from the Super-Efficient Refrigerator Program, sponsored by the Natural Resources Defense Council and funded by 24 electric utilities. Unfortunately, Energy Wise’s sales languished because the CFC-free benefit and energy-savings did not offset its \$100 to \$150 price premium, particularly in markets outside the rebate program, and the refrigerators did not offer additional features or new styles that consumers desired.¹³ General Motors (GM) and Ford encountered similar problems when they launched their highly publicized EV-1 and Think Mobility electric vehicles, respectively, in the late 1990s to early 2000s in response to the 1990 zero-emission vehicle (ZEV) regulations adopted in California.¹⁴ Both automakers believed their novel two-seater cars would be market successes (GM offered the EV-1 in a lease program, and Ford offered Think Mobility vehicles as rentals via the Hertz car-rental chain). Consumers, however, found electric vehicles’ need for constant recharging with few recharging locations too inconvenient. Critics charged that the automakers made only token efforts to make electric cars a success, but a GM spokesperson recently explained, “We spent more than \$1 billion to produce and market the vehicle, [but] fewer than 800 were leased.”¹⁵ Most drivers were not willing to drastically change their driving habits and expectations to accommodate electric cars, and the products ultimately were taken off the market.¹⁶

Aside from offering environmental benefits that do not meet consumer preferences,

green marketing myopia can also occur when green products fail to provide credible, substantive environmental benefits. Mobil’s Hefty photo-degradable plastic trash bag is a case in point. Introduced in 1989, Hefty packages prominently displayed the term “degradable” with the explanation that a special ingredient promoted its decomposition into harmless particles in landfills “activated by exposure to the elements” such as sun, wind, and rain. Because most garbage is buried in landfills that allow limited exposure to the elements, making degradation virtually impossible, the claim enraged environmentalists. Ultimately, seven state attorneys general sued Mobil on charges of deceptive advertising and consumer fraud. Mobil removed the claim from its packaging and vowed to use extreme caution in making environmental claims in the future.¹⁷

Other fiascos have convinced many companies and consumers to reject green products. Roper ASW’s 2002 “Green Gauge Report” finds that the top reasons consumers do not buy green products included beliefs that they require sacrifices—inconvenience, higher costs, lower performance—without significant environmental benefits.¹⁸ Ironically, despite what consumers think, a plethora of green products available in the marketplace are in fact desirable because they deliver convenience, lower operating costs, and/or better performance. Often these are not marketed along with their green benefits, so consumers do not immediately recognize them as green and form misperceptions about their benefits. For instance, the appeal of premium-priced Marathon and other brands of CFL bulbs can be attributed to their energy savings and long life, qualities that make them convenient and economical over time.

When consumers are convinced of the desirable “non-green” benefits of environmental products, they are more inclined to adopt them.

Other environmental products have also scored market successes by either serving profitable niche markets or offering mainstream appeal. Consider the Toyota Prius, the gas-electric hybrid vehicle that achieves about 44 miles per gallon of gasoline.¹⁹ In recent years, Toyota’s production has hardly kept pace with



the growing demand, with buyers enduring long waits and paying thousands above the car’s sticker price.²⁰ Consequently, other carmakers have scrambled to launch their own hybrids.²¹ However, despite higher gas prices, analysts assert that it can take 5 to 20 years for lower gas expenses to offset many hybrid cars’ higher prices. Thus, economics alone cannot explain their growing popularity.

Analysts offer several reasons for the Prius’ market demand. Initially, the buzz over the Prius got a boost at the 2003 Academy Awards when celebrities such as Cameron Diaz, Harrison Ford, Susan Sarandon, and Robin Williams abandoned stretch limousines and oversized sport utility vehicles, arriving in Priuses to symbolize support for reducing Amer-

ica's dependence on foreign oil.²² Since then, the quirky-looking Prius' badge of "conspicuous conservation" has satisfied many drivers' desires to turn heads and make a statement about their social responsibility, among them Google founders Larry Page and Sergey Brin, columnist Arianna Huffington, comic Bill Maher, and Charles, Prince of Wales.²³ The Prius ultimately was named *Motor Trend's* Car of the Year in 2004. The trendy appeal of the Prius illustrates that some green products can leverage consumer desires

for being distinctive. Others say the Prius is just fun to drive—the dazzling digital dashboard that offers continuous feedback on fuel efficiency and other car operations provides an entertaining driving experience. More recently, however, the Prius has garnered fans for more practical reasons. A 2006 Maritz Poll finds that owners purchased hybrids because of the convenience of fewer fill-ups, better performance, and the enjoyment of driving the latest technology.²⁴ In some states, the Prius and other high-mileage hybrid

vehicles, such as Honda's Insight, are granted free parking and solo-occupancy access to high occupancy vehicle (HOV) lanes.²⁵ In sum, hybrid vehicles offer consumers several desirable benefits that are not necessarily "green" benefits.

Many environmental products have become so common and widely distributed that many consumers may no longer recognize them as green because they buy them for non-green reasons. Green household products, for instance, are widely available at supermarkets and discount

EMERGING AGE OF CLEANTECH

In a 1960 Harvard Business Review article, Harvard professor Theodore Levitt introduced the classic concept of "marketing myopia" to characterize businesses' narrow vision on product features rather than consumer benefits.¹ The consequence is that businesses focus on making better mousetraps rather than seeking better alternatives for controlling pests. To avoid marketing myopia, businesses must engage in "creative destruction," described by economist Joseph Schumpeter as destroying existing products, production methods, market structures and consumption patterns, and replacing them with ways that better meet ever-changing consumer desires.² The dynamic pattern in which innovative upstart companies unseat established corporations and industries by capitalizing on new and improved innovations is illustrated by history. That is, the destruction of Coal Age technologies by Oil Age innovations, which are being destroyed by Information Age advances and the emerging Age of Cleantech—clean, energy- and resource-efficient energy technologies, such as those involving low/zero-emissions, wind, solar, biomass, hydrogen, recycling, and closed-loop processes.³

Business management researchers Stuart Hart and Mark Milstein argue that the emerging challenge of global sustainability is catalyzing a new round of creative destruction that offers "unprecedented opportunities" for new environmentally sensitive innovations,

markets, and products.⁴ Throughout the twentieth century, many technologies and business practices have contributed to the destruction of the very ecological systems on which the economy and life itself depends, including toxic contamination, depletion of fisheries and forests, soil erosion, and biodiversity loss. Recent news reports indicate, however, that many companies and consumers are beginning to respond to programs to help conserve the Earth's natural resources, and green marketing is making a comeback.⁵ The need for sustainability has become more acute economically as soaring demand, dwindling supplies, and rising prices for oil, gas, coal, water, and other natural resources are being driven by the industrialization of populous countries, such as China and India. Politically, America's significant reliance on foreign oil has become increasingly recognized as a security threat. Global concerns over climate change have led 141 countries to ratify the Kyoto Protocol, the international treaty requiring the reduction of global warming gases created through the burning of fossil fuels. Although the United States has not signed the treaty, most multinational corporations conducting business in signatory nations are compelled to reduce their greenhouse gas emissions, and many states (such as California) and cities (such as Chicago and Seattle) have or are initiating their own global warming gas emission reduction programs.⁶ State and city-level policy incentives and

mandates, such as "renewable portfolio standards," requiring utilities to provide increasing amounts of electricity from clean, renewable sources such as wind and solar power, are also driving cleaner technology markets.

While some firms have responded grudgingly to such pressures for more efficient and cleaner business practices, others are seizing the the cleantech innovation opportunities for new twenty-first-century green products and technologies for competitive advantage. Toyota, for instance, plans to offer an all-hybrid fleet in the near future to challenge competitors on both performance and fuel economy.⁷ Further, Toyota is licensing its technology to its competitors to gain profit from their hybrid sales as well. General Electric's highly publicized "Ecomagination" initiative promises a greener world with a plan to double its investments (to \$1.5 billion annually) and revenues (to \$20 billion) from fuel-efficient diesel locomotives, wind power, "clean" coal, and other cleaner innovations by 2010.⁸ Cleantech is attracting investors looking for the "Next Big Thing," including Goldman Sachs and Kleiner Perkins Caufield & Byers.⁹ Wal-Mart, too, is testing a sustainable 206,000-square foot store design in Texas that deploys 26 energy-saving and renewable-materials experiments that could set new standards in future retail store construction.¹⁰ In sum, economic, political, and environmental pressures are coalescing to drive cleaner and

retailers, ranging from energy-saving Tide Coldwater laundry detergent to non-toxic Method and Simple Green cleaning products. Use of recycled or biodegradable paper products (such as plates, towels, napkins, coffee filters, computer paper, and other goods) is also widespread. Organic and rainforest-protective “shade grown” coffees are available at Starbucks and other specialty stores and supermarkets. Organic baby food is expected to command 12 percent market share in 2006 as parents strive to protect their chil-

greener technological innovation in the twenty-first century, and companies that fail to adapt their products and processes accordingly are destined to suffer from the consequences of marketing myopia and creative destruction.

1. T. Levitt, “Marketing Myopia,” *Harvard Business Review* 28, July-August (1960): 24–47.
2. See J. Schumpeter, *The Theory of Economic Development* (Cambridge: Harvard University Press, 1934); and J. Schumpeter, *Capitalism, Socialism and Democracy* (New York: Harper Torchbooks, 1942).
3. “Alternate Power: A Change Is in the Wind,” *Business Week*, 4 July 2005, 36–37.
4. S. L. Hart and M. B. Milstein, “Global Sustainability and the Creative Destruction of Industries,” *MIT Sloan Management Review* 41, Fall (1999): 23–33.
5. See for example T. Howard, “Being Eco-Friendly Can Pay Economically; ‘Green Marketing’ Sees Growth in Sales, Ads,” *USA Today*, 15 August 2005; and E. R. Stafford, “Energy Efficiency and the New Green Marketing,” *Environment*, March 2003, 8–10.
6. J. Ball, “California Sets Emission Goals That Are Stiffer than U.S. Plan,” *Wall Street Journal*, 2 June 2005; and J. Marglis, “Paving the Way for U.S. Emissions Trading,” *Grist Magazine*, 14 June 2005, www.climatebiz.com/sections/news_print.dfm?NewsID=28255.
7. Bloomberg News, “Toyota Says It Plans Eventually to Offer an All-Hybrid Fleet,” 14 September 2005, <http://www.nytimes.com/2005/09/14/automobiles/14toyota.html>.
8. J. Erickson, “U.S. Business and Climate Change: Siding with the Marketing?” *Sustainability Radar*, June, www.climatebiz.com/sections/new_print.cfm?NewsID=28204.
9. *Business Week*, note 3 above.
10. Howard, note 5 above.

dren’s mental and physical development.²⁶ Indeed, the organic food market segment has increased 20 percent annually since 1990, five times faster than the conventional food market, spurring the growth of specialty retailers such as Whole Foods Market and Wild Oats. Wal-Mart, too, has joined this extensive distribution of organic products.²⁷ Indeed, Wal-Mart has recently declared that in North American stores, its non-farm-raised fresh fish will be certified by the Marine Stewardship Council as sustainably harvested.²⁸

Super energy-efficient appliances and fixtures are also becoming popular. Chic, front-loading washing machines, for example, accounted for 25 percent of the market in 2004, up from 9 percent in 2001.²⁹ EPA’s Energy Star label, which certifies that products consume up to 30 percent less energy than comparable alternatives, is found on products ranging from major appliances to light fixtures to entire buildings (minimum efficiency standards vary from product to product). The construction industry is becoming increasingly green as government and industry demand office buildings that are “high performance” (for example, super energy- and resource-efficient and cost-effective) and “healthy” for occupants (for example, well-ventilated; constructed with materials with low or no volatile organic compounds [VOC]). The U.S. Green Building Council’s “Leadership in Energy and Environmental Design” (LEED) provides a rigorous rating system and green building checklist that are rapidly becoming the standard for environmentally sensitive construction.³⁰

Home buyers are recognizing the practical long-term cost savings and comfort of natural lighting, passive solar heating, and heat-reflective windows, and a 2006 study sponsored by home improvement retailer Lowe’s found nine out of ten builders surveyed are incorporating energy-saving features into new homes.³¹ Additionally, a proliferation of “green” building materials to serve the growing demand has emerged.³² Lowe’s competitor The Home

Depot is testing an ‘EcoOptions’ product line featuring natural fertilizers and mold-resistant drywall in its Canadian stores that may filter into the U.S. market.³³ In short, energy efficiency and green construction have become mainstream.

The diversity and availability of green products indicate that consumers are not indifferent to the value offered by environmental benefits. Consumers are buying green—but not necessarily for environmental reasons. The market growth of organic foods and energy-efficient appliances is because consumers desire their perceived safety and money savings, respectively.³⁴ Thus, the apparent paradox between what consumers say and their purchases may be explained, in part, by green marketing myopia—a narrow focus on the greenness of products that blinds companies from considering the broader consumer and societal desires. A fixation on products’ environmental merits has resulted frequently in inferior green products (for example, the original EarthLight and GM’s EV-1 electric car) and unsatisfying consumer experiences. By contrast, the analysis of past research and marketing strategies finds that successful green products have avoided green marketing myopia by following three important principles: “The Three Cs” of consumer value positioning, calibration of consumer knowledge, and credibility of product claims.

Consumer Value Positioning

The marketing of successfully established green products showcases non-green consumer value, and there are at least five desirable benefits commonly associated with green products: efficiency and cost effectiveness; health and safety; performance; symbolism and status; and convenience. Additionally, when these five consumer value propositions are not inherent in the green product, successful green marketing programs bundle (that is, add to the product design or market offering) desirable consumer value to broaden

the green product's appeal. In practice, the implication is that product designers and marketers need to align environmental products' consumer value (such as money savings) to relevant consumer market segments (for example, cost-conscious consumers).

Efficiency and Cost Effectiveness

As exemplified by the Marathon CFL bulbs, the common inherent benefit of many green products is their potential energy and resource efficiency. Given sky-rocketing energy prices and tax incentives for fuel-efficient cars and energy-saving home improvements and appli-



ances, long-term savings have convinced cost-conscious consumers to buy green.

Recently, the home appliance industry made great strides in developing energy-efficient products to achieve EPA's Energy Star rating. For example, Energy Star refrigerators use at least 15 percent less energy and dishwashers use at least 25 percent less energy than do traditional

models.³⁵ Consequently, an Energy Star product often commands a price premium. Whirlpool's popular Duet front-loading washer and dryer, for example, cost more than \$2,000, about double the price of conventional units; however, the washers can save up to 12,000 gallons of water and \$110 on electricity annually compared to standard models (Energy Star does not rate dryers).³⁶

Laundry detergents are also touting energy savings. Procter & Gamble's (P&G) newest market entry, Tide Coldwater, is designed to clean clothes effectively in cold water. About 80 to 85 percent of the energy used to wash clothes comes from heating water. Working with utility companies, P&G found that consumers could save an average of \$63 per year by using cold rather than warm water.³⁷ Adopting Tide Coldwater gives added confidence to consumers already washing in cold water. As energy and resource prices continue to soar, opportunities for products offering efficiency and savings are destined for market growth.

Health and Safety

Concerns over exposure to toxic chemicals, hormones, or drugs in everyday products have made health and safety important choice considerations, especially among vulnerable consumers, such as pregnant women, children, and the elderly.³⁸ Because most environmental products are grown or designed to minimize or eliminate the use of toxic agents and adulterating processes, market positioning on consumer safety and health can achieve broad appeal among health-conscious consumers. Sales of organic foods, for example, have grown considerably in the wake of public fear over "mad cow" disease, anti-

biotic-laced meats, mercury in fish, and genetically modified foods.³⁹ Mainstream appeal of organics is not derived from marketers promoting the advantages of free-range animal ranching and pesticide-free soil. Rather, market positioning of organics as flavorful, healthy alternatives to factory-farm foods has convinced consumers to pay a premium for them.

A study conducted by the Alliance for Environmental Innovation and household products-maker S.C. Johnson found that consumers are most likely to act on green messages that strongly connect to their personal environments.⁴⁰ Specifically, findings suggest that the majority of consumers prefer such environmental household product benefits as "safe to use around children," "no toxic ingredients," "no chemical residues," and "no strong fumes" over such benefits as "packaging can be recycled" or "not tested on animals." Seventh Generation, a brand of non-toxic and environmentally-safe household products, derived its name from the Iroquois belief that, "In our every deliberation, we must consider the impact of our decisions on the next seven generations." Accordingly, its products promote the family-oriented value of making the world a safer place for the next seven generations.

Indoor air quality is also a growing concern. Fumes from paints, carpets, furniture, and other décor in poorly ventilated "sick buildings" have been linked to headaches, eye, nose, and throat irritation, dizziness, and fatigue among occupants. Consequently, many manufacturers have launched green products to reduce indoor air pollution. Sherwin Williams, for example, offers "Harmony," a line of interior paints that is low-odor, zero-VOC, and silica-free. And Mohawk sells EverSet Fibers, a carpet that virtually eliminates the need for harsh chemical cleaners because its design allows most stains to be removed with water. Aside from energy efficiency, health and safety have been key motivators driving the green building movement.

Performance

The conventional wisdom is that green products don't work as well as "non-green" ones. This is a legacy from the first generation of environmentally sensitive products that clearly were inferior. Consumer perception of green cleaning agents introduced in health food stores in the 1960s and 1970s, for example, was that "they cost twice as much to remove half the grime."⁴¹ Today, however, many green products are designed to perform *better* than conventional ones and can command a price premium. For example, in addition to energy efficiency, front-loading washers clean better and are gentler on clothes compared to conventional top-loading machines because they spin clothes in a motion similar to clothes driers and use centrifugal force to pull dirt and water away from clothes. By contrast, most top-loading washers use agitators to pull

the cost of pressure-treated pine and 15 percent more than cedar or redwood.⁴²

Likewise, Milgard Windows' low emissivity SunCoat Low-E windows filter the sun in the summer and reduce heat loss in the winter. While the windows can reduce a building's overall energy use, their more significant benefit comes from helping to create a comfortable indoor radiant temperature climate and protecting carpets and furniture from harmful ultraviolet rays. Consequently, Milgard promotes the improved comfort and performance of its SunCoat Low-E windows over conventional windows. In sum, "high performance" positioning can broaden green product appeal.

Symbolism and Status

As mentioned earlier, the Prius, Toyota's gas-electric hybrid, has come to epitomize "green chic." According to many

recently, Toyota has striven to position its "hybrid synergy drive" system as a cut above other car makers' hybrid technologies with witty slogans such as, "Commute with Nature," "mpg:)," and "There's Nothing Like That New Planet Smell."⁴⁵ During the 2006 Super Bowl XL game, Ford launched a similarly humorous commercial featuring Kermit the Frog encountering a hybrid Escape sports utility vehicle in the forest, and in a twist, changing his tune with "I guess it is easy being green!"⁴⁶

In business, where office furniture symbolizes the cachet of corporate image and status, the ergonomically designed "Think" chair is marketed as the chair "with a brain and a conscience." Produced by Steelcase, the world's largest office furniture manufacturer, the Think chair embodies the latest in "cradle to cradle" (C2C) design and manufacturing. C2C, which describes products that can be ultimately returned to technical or biological nutrients, encourages

MARKET POSITIONING ON CONSUMER SAFETY AND HEALTH CAN ACHIEVE BROAD APPEAL AMONG HEALTH-CONSCIOUS CONSUMERS.

clothes through tanks of water, reducing cleaning and increasing wear on clothes. Consequently, the efficiency and high performance benefits of top-loading washers justify their premium prices.

Homeowners commonly build decks with cedar, redwood, or pressure-treated pine (which historically was treated with toxic agents such as arsenic). Wood requires stain or paint and periodic applications of chemical preservatives for maintenance. Increasingly, however, composite deck material made from recycled milk jugs and wood fiber, such as Weyerhaeuser's ChoiceDek, is marketed as the smarter alternative. Composites are attractive, durable, and low maintenance. They do not contain toxic chemicals and never need staining or chemical preservatives. Accordingly, they command a price premium—as much as two to three times

automobile analysts, the cool-kid cachet that comes with being an early adopter of the quirky-looking hybrid vehicle trend continues to partly motivate sales.⁴³ Establishing a green chic appeal, however, isn't easy. According to popular culture experts, green marketing must appear grass-roots driven and humorous without sounding preachy. To appeal to young people, conservation and green consumption need the unsolicited endorsement of high-profile celebrities and connection to cool technology.⁴⁴ Prius has capitalized on its evangelical following and high-tech image with some satirical ads, including a television commercial comparing the hybrid with Neil Armstrong's moon landing ("That's one small step on the accelerator, one giant leap for mankind") and product placements in popular Hollywood films and sitcoms (such as *Curb Your Enthusiasm*). More

industrial designers to create products free of harmful agents and processes that can be recycled easily into new products (such as metals and plastics) or safely returned to the earth (such as plant-based materials).⁴⁷ Made without any known carcinogens, the Think chair is 99 percent recyclable; it disassembles with basic hand tools in about five minutes, and parts are stamped with icons showing recycling options.⁴⁸ Leveraging its award-winning design and sleek comfort, the Think chair is positioned as symbolizing the smart, socially responsible office. In sum, green products can be positioned as status symbols.

Convenience

Many energy-efficient products offer inherent convenience benefits that can be showcased for competitive advantage.

CFL bulbs, for example, need infrequent replacement and gas-electric hybrid cars require fewer refueling stops—benefits that are highlighted in their marketing communications. Another efficient alternative to incandescent bulbs are light-emitting diodes (LEDs): They are even more efficient and longer-lasting than CFL bulbs; emit a clearer, brighter light; and are virtually unbreakable even in cold and hot weather. LEDs are used in traffic lights due to their high-performance convenience. Recently, a city in Idaho became a pioneer by adopting LEDs for its annual holiday Festival of Lights. “We spent so much time replacing strings of lights and bulbs,” noted one city official, “[using LEDs] is going to reduce two-thirds of the work for us.”⁴⁹

To encourage hybrid vehicle adoption, some states and cities are granting their drivers the convenience of free parking and solo-occupant access to HOV lanes. A Toyota spokesperson recently told the *Los Angeles Times*, “Many customers are telling us the carpool lane is the main reason for buying now.”⁵⁰ Toyota highlights the carpool benefit on its Prius Web site, and convenience has become an incentive to drive efficient hybrid cars in traffic-congested states like California and Virginia. Critics have charged, however, that such incentives clog carpool lanes

or boating or in homes situated off the power grid). That convenience, however, is being exploited for other applications. In landscaping, for example, self-contained solar-powered outdoor evening lights that recharge automatically during the day eliminate the need for electrical hookups and offer flexibility for reconfiguration. With society’s increasing mobility and reliance on electronics, solar power’s convenience is also manifest in solar-powered calculators, wrist watches, and other gadgets, eliminating worries over dying batteries. Reware’s solar-powered “Juice Bag” backpack is a popular portable re-charger for students, professionals, and outdoor enthusiasts on the go. The Juice Bag’s flexible, waterproof solar panel has a 16.6-volt capacity to generate 6.3 watts to recharge PDAs, cell phones, iPods, and other gadgets in about 2 to 4 hours.⁵²

Bundling

Some green products do not offer any of the inherent five consumer-desired benefits noted above. This was the case when energy-efficient and CFC-free refrigerators were introduced in China in the 1990s. While Chinese consumers preferred and were willing to pay about 15 percent more

Given consumer demand for convenience, incorporating time-saving or ease-of-use features into green products can further expand their mainstream acceptance. Ford’s hybrid Escape SUV comes with an optional 110-volt AC power outlet suitable for work, tailgating, or camping. Convenience has also enhanced the appeal of Interface’s recyclable FLOR carpeting, which is marketed as “practical, goof-proof, and versatile.” FLOR comes in modular square tiles with four peel-and-stick dots on the back for easy installation (and pull up for altering, recycling, or washing with water in the sink). Modularity offers versatility to assemble tiles for a custom look. Interface promotes the idea that its carpet tiles can be changed and reconfigured in minutes to dress up a room for any occasion. The tiles come in pizza-style boxes for storage, and ease of use is FLOR’s primary consumer appeal.

Finally, Austin (Texas) Energy’s “Green Choice” program has led the nation in renewable energy sales for the past three years.⁵⁴ In 2006, demand for wind energy outpaced supply so that the utility resorted to selecting new “Green Choice” subscribers by lottery.⁵⁵ While most utilities find it challenging to sell green electricity at a premium price on its environmental merit, Austin Energy’s success comes from bundling three benefits that

ACCORDING TO POPULAR CULTURE EXPERTS, GREEN MARKETING MUST APPEAR GRASS-ROOTS DRIVEN AND HUMOROUS WITHOUT SOUNDING PREACHY.

and reinforce a “one car, one person” lifestyle over alternative transportation. In response, the Virginia legislature has more recently enacted curbs on hybrid drivers use of HOV lanes during peak hours, requiring three or more people per vehicle, except for those that have been grandfathered in.⁵¹

Solar power was once used only for supplying electricity in remote areas (for example, while camping in the wilderness

for refrigerators that were “energy-efficient,” they did not connect the environmental advantage of “CFC-free” with either energy efficiency or savings. Consequently, the “CFC-free” feature had little impact on purchase decisions.⁵³ To encourage demand, the CFC-free feature was bundled with attributes desired by Chinese consumers, which included energy efficiency, savings, brand/quality, and outstanding after-sales service.

appeal to commercial power users: First, Green Choice customers are recognized in broadcast media for their corporate responsibility; second, the green power is marketed as “home grown,” appealing to Texan loyalties; and third, the program offers a fixed price that is locked in for 10 years. Because wind power’s cost is derived primarily from the construction of wind farms and is not subject to volatile fossil fuel costs, Austin Energy passes

its inherent price stability onto its Green Choice customers. Thus, companies participating in Green Choice enjoy the predictability of their future energy costs in an otherwise volatile energy market.

In summary, the analysis suggests that successful green marketing programs have broadened the consumer appeal of green products by convincing consumers of their “non-green” consumer value. The lesson for crafting effective green marketing strategies is that planners need to identify the inherent consumer value of green product attributes (for example, energy efficiency’s inherent long-term money savings) or bundle desired consumer value into green products (such as fixed pricing of wind power) and to draw marketing attention to this consumer value.

Calibration of Consumer Knowledge

Many of the successful green products in the analysis described here employ compelling, educational marketing messages and slogans that connect green product attributes with desired consumer value. That is, the marketing programs successfully calibrated consumer knowledge to recognize the green product’s consumer benefits. In many instances, the environmental benefit was positioned as secondary, if mentioned at all. Changes made in EPA’s Energy Star logo provide an example, illustrating the program’s improved message calibration over the years. One of Energy Star’s early marketing messages, “EPA Pollution Preventer,” was not only ambiguous but myopically focused on pollution rather than a more mainstream consumer benefit. A later promotional message, “Saving The Earth. Saving Your Money.” better associated energy efficiency with consumer value, and one of its more recent slogans, “Money Isn’t All You’re Saving,” touts economic savings as the chief benefit. This newest slogan also encourages con-

sumers to think implicitly about what else they are “saving”—the logo’s illustration of the Earth suggests the answer, educating consumers that “saving the Earth” can also meet consumer self-interest.

The connection between environmental benefit and consumer value is evident in Earthbound Farm Organic’s slogan, “Delicious produce is our business, but health is our bottom line,” which communicates that pesticide-free produce is flavorful and healthy. Likewise, Tide Coldwater’s “Deep Clean. Save Green.” slogan not only assures consumers of the detergent’s cleaning performance, but the term “green” offers a double meaning, connecting Tide’s cost saving with its environmental benefit. Citizen’s solar-powered Eco-Drive watch’s slogan, “Unstoppable Caliber,” communicates the product’s convenience and performance (that is, the battery will not die) as well as prestige. Table 1 on page 32 shows other successful marketing messages that educate consumers of the inherent consumer value of green.

Some compelling marketing communications educate consumers to recognize green products as “solutions” for their personal needs *and* the environment.⁵⁶ When introducing its Renewal brand, Rayovac positioned the reusable alkaline batteries as a solution for heavy battery users and the environment with concurrent ads touting “How to save \$150 on a CD player that costs \$100” and “How to save 147 batteries from going to landfills.” Complementing the money savings and landfill angles, another ad in the campaign featured sports star Michael Jordan proclaiming, “More Power. More Music. And More Game Time.” to connect Renewal batteries’ performance to convenience.⁵⁷ In practice, the analysis conducted here suggests that advertising that draws attention to how the environ-

mental product benefit can deliver desired personal value can broaden consumer acceptance of green products.

Credibility of Product Claims

Credibility is the foundation of effective green marketing. Green products must meet or exceed consumer expectations by delivering their promised consumer value and providing substantive environmental benefits. Often, consumers don’t have the expertise or ability to



verify green products’ environmental and consumer values, creating misperceptions and skepticism. As exemplified in the case of Mobil’s Hefty photodegradable plastic trash bag described earlier, green marketing that touts a product’s or a company’s environmental credentials can spark the scrutiny of advocacy groups or regulators. For example, although it was approved by the U.S. Food and Drug Administration, sugar substitute Splenda’s “Made from sugar, so it tastes like sugar” slogan and claim of being “natural” have been challenged by the Sugar Association and Generation Green, a health advocacy group, as misleading given that its processing results in a product that is “unrecognizable as sugar.”⁵⁸

To be persuasive, past research suggests that green claims should be specific and meaningful.⁵⁹ Toyota recognizes the ambiguity of the term “green” and discourages its use in its marketing of its gas-electric hybrid cars. One proposed slogan, “Drive green, breathe blue” was dismissed in favor of specific claims about fuel efficiency, such as “Less gas in. Less gas goes out.”⁶⁰ Further, environmental claims must be humble and not over-promise. When Ford Motor Company publicized in *National Geographic* and other magazines its new eco-designed Rouge River Plant that incorporated the world’s largest living roof of plants, critics questioned the authenticity of Ford’s environmental commitment given the poor fuel economy of the automaker’s best-selling SUVs.⁶¹ Even the Prius has garnered some criticism for achieving considerably less mileage (approximately 26 percent less according to *Consumer Reports*) than its government sticker rating claims, although the actual reduced mileage does not appear to be hampering sales.⁶² Nonetheless, green product attributes need to be communicated honestly and qualified for believability (in other words, consumer benefits and environmental effectiveness claims need to be compared with comparable alternatives or likely usage scenarios). For example, Toyota includes an “actual mileage may vary” disclaimer in Prius advertising. When Ford’s hybrid Escape SUV owners complained that they were not achieving expected mileage ratings, Ford launched the “Fuel-Economy School” campaign to educate drivers about ways to maximize fuel efficiency.⁶³ Further, EPA is reconsidering how it estimates hybrid mileage ratings to better reflect realistic driving conditions (such as heavy acceleration and air conditioner usage).⁶⁴

Third Party Endorsements and Eco-Certifications

Expert third parties with respected standards for environmental testing (such as independent laboratories, government

agencies, private consultants, or non-profit advocacy organizations) can provide green product endorsements and/or “seals of approval” to help clarify

and bolster the believability of product claims.⁶⁵ The “Energy Star” label, discussed earlier, is a common certification that distinguishes certain electronic

Table 1. Marketing messages connecting green products with desired consumer value

Value	Message and business/product
Efficiency and cost effectiveness	<p>“The only thing our washer will shrink is your water bill.” –ASKO</p> <p>“Did you know that between 80 and 85 percent of the energy used to wash clothes comes from heating the water? Tide Coldwater–The Coolest Way to Clean.” –Tide Coldwater Laundry Detergent</p> <p>“mpg:)” –Toyota Prius</p>
Health and safety	<p>“20 years of refusing to farm with toxic pesticides. Stubborn, perhaps. Healthy, most definitely.” –Earthbound Farm Organic</p> <p>“Safer for You and the Environment.” –Seventh Generation Household Cleaners</p>
Performance	<p>“Environmentally friendly stain removal. It’s as simple as H₂O.” –Mohawk EverSet Fibers Carpet</p> <p>“Fueled by light so it runs forever. It’s unstoppable. Just like the people who wear it.” –Citizen Eco-Drive Sport Watch</p>
Symbolism	<p>“Think is the chair with a brain and a conscience.” –Steelcase’s Think Chair</p> <p>“Make up your mind, not just your face.” –The Body Shop</p>
Convenience	<p>“Long life for hard-to-reach places.” –General Electric’s CFL Flood Lights</p>
Bundling	<p>“Performance and luxury fueled by innovative technology.” –Lexus RX400h Hybrid Sports Utility Vehicle</p>

SOURCE: Compiled by J.A. Ottman, E.R. Stafford, and C.L. Hartman, 2006.

products as consuming up to 30 percent less energy than comparable alternatives. The U.S. Department of Agriculture's "USDA Organic" certifies the production and handling of organic produce and dairy products.

Green Seal and Scientific Certification Systems emblems certify a broad spectrum of green products. Green Seal sets specific criteria for various categories of products, ranging from paints to cleaning agents to hotel properties, and for a fee, companies can have their products evaluated and monitored annually for certification. Green Seal-certified products include Zero-VOC Olympic Premium

tiative, which range from fuel-efficient aircraft engines to wind turbines to water treatment technologies. Only those passing GreenOrder's criteria are marketed as Ecomagination products, but critics have questioned GE's inclusion of "cleaner coal" (that is, coal gasification for cleaner burning and sequestration of carbon dioxide emissions) as an "Ecomagination" product.⁶⁸

Consequently, when seeking endorsements and eco-certifications, marketers should consider the environmental trade-offs and complexity of their products and the third parties behind endorsements and/or certifications: Is the third party

at almost the same pace. There is huge environmental value in developing ways to mitigate these plants' emissions."⁷¹

Word-of-Mouth Evangelism and the Internet

Increasingly, consumers have grown skeptical of commercial messages, and they're turning to the collective wisdom and experience of their friends and peers about products.⁷² Word-of-mouth or "buzz" is perceived to be very credible, especially as consumers consider and try to comprehend complex product innovations. The Internet, through e-mail and its

ALTHOUGH ECO-CERTIFICATIONS DIFFERENTIATE PRODUCTS AND AID IN CONSUMER DECISIONMAKING, THEY ARE NOT WITHOUT CONTROVERSY.

interior paint and Johnson Wax professional cleaners. Green Seal has also certified the Hyatt Regency in Washington, DC, for the hotel's comprehensive energy and water conservation, recycling programs, and environmental practices. By contrast, Scientific Certification Systems (SCS) certifies specific product claims or provides a detailed "eco-profile" for a product's environmental impact for display on product labels for a broad array of products, from agricultural products to fisheries to construction. For example, Armstrong hard surface flooring holds SCS certification, and SCS works with retailers like The Home Depot to monitor its vendors' environmental claims.⁶⁶

Although eco-certifications differentiate products and aid in consumer decisionmaking, they are not without controversy. The science behind eco-seals can appear subjective and/or complex, and critics may take issue with certification criteria.⁶⁷ For example, GreenOrder, a New York-based environmental consulting firm, has devised a scorecard to evaluate cleantech products marketed in General Electric's "Ecomagination" ini-

respected? Are its certification methodologies accepted by leading environmentalists, industry experts, government regulators, and other key stakeholders? Marketers should educate their customers about the meaning behind an endorsement or an eco-seal's criteria. GE recognizes that its cleaner coal technology is controversial but hopes that robust marketing and educational outreach will convince society about cleaner coal's environmental benefits.⁶⁹ On its Web site, GE references U.S. Energy Information Administration's statistics that coal accounts for about 24 percent of the world's total energy consumption, arguing that coal will continue to be a dominant source of energy due to its abundance and the increasing electrification of populous nations such as China and India.⁷⁰ In response to GE's commitment to clean coal, Jonathan Lash, president of the World Resources Institute, said, "Five years ago, I had to struggle to suppress my gag response to terms like 'clean coal,' but I've since faced the sobering reality that every two weeks China opens a new coal-fired plant. India is moving

vast, accessible repository of information, Web sites, search engines, blogs, product ratings sites, podcasts, and other digital platforms, has opened significant opportunities for tapping consumers' social and communication networks to diffuse credible "word-of-mouth" (buzz facilitated by the Internet) about green products. This is exemplified by one of the most spectacular product introductions on the Web: Tide Coldwater.

In 2005, Procter & Gamble partnered with the non-profit organization, the Alliance to Save Energy (ASE), in a "viral marketing" campaign to spread news about the money-saving benefits of laundering clothes in cold water with specially formulated Tide Coldwater.⁷³ ASE provided credibility for the detergent by auditing and backing P&G's claims that consumers could save an average of \$63 a year if they switched from warm to cold water washes. ASE sent e-mail promotions encouraging consumers to visit Tide.com's interactive Web site and take the "Coldwater Challenge" by registering to receive a free sample. Visitors could calculate how much money they would

save by using the detergent, learn other energy-saving laundry tips, and refer e-mail addresses of their friends to take the challenge as well. Tide.com offered an engaging map of the United States where, over time, visitors could track and watch their personal networks grow across the country when their friends logged onto the site to request a free sample.

Given the immediacy of e-mail and the Internet, word-of-mouth is fast becoming an important vehicle for spreading credible news about new products. According to the Pew Internet & American Life Project, 44 percent of online U.S. adults (about 50 million Americans) are “content creators,” meaning that they contribute to the Internet via blogs, product recommendations, and reviews.⁷⁴ To facilitate buzz, however, marketers need to create credible messages, stories, and Web sites about their products that are so compelling, interesting, and/or entertaining that consumers will seek the information out and forward it to their friends and family.⁷⁵ The fact that P&G was able to achieve this for a low-involvement product is quite remarkable.

International online marketing consultant Hitwise reported that ASE’s e-mail campaign increased traffic at the Tide Coldwater Web site by 900 percent in the first week, and then tripled that level in week two.⁷⁶ Within a few months, more than one million Americans accepted the “Coldwater Challenge,” and word-of-mouth cascaded through ten degrees of separation across all 50 states and more than 33,000 zip codes.⁷⁷ In October 2005, Hitwise reported that Tide.com ranked as the twelfth most popular site by market share of visits in the “Lifestyle—House and Garden” category.⁷⁸ No other laundry detergent brand’s Web site has gained a significant Web presence in terms of the number of visits.

P&G’s savvy implementation of “The Three Cs”—consumer value positioning on money savings, calibration of consumer knowledge about cold wash effectiveness via an engaging Web site, and

credible product messages dispatched by a respected non-profit group and consumers’ Internet networks—set the stage for Tide Coldwater’s successful launch.

The Future of Green Marketing

Clearly, there are many lessons to be learned to avoid green marketing myopia (see the box on this page)—the short version of all this is that effective green marketing requires applying good marketing principles to make green products

desirable for consumers. The question that remains, however, is, what is green marketing’s future? Historically, green marketing has been a misunderstood concept. Business scholars have viewed it as a “fringe” topic, given that environmentalism’s acceptance of limits and conservation does not mesh well with marketing’s traditional axioms of “give customers what they want” and “sell as much as you can.” In practice, green marketing myopia has led to ineffective products and consumer reluctance. Sustainability, however, is destined to dominate twenty-first century commerce. Rising energy prices,

SUMMARY OF GUIDEPOSTS FOR THE “THREE C’S”

Evidence indicates that successful green products have avoided green marketing myopia by following three important principles: consumer value positioning, calibration of consumer knowledge, and the credibility of product claims.

Consumer Value Positioning

- Design environmental products to perform as well as (or better than) alternatives.
- Promote and deliver the consumer-desired value of environmental products and target relevant consumer market segments (such as market health benefits among health-conscious consumers).
- Broaden mainstream appeal by bundling (or adding) consumer-desired value into environmental products (such as fixed pricing for subscribers of renewable energy).

Calibration of Consumer Knowledge

- Educate consumers with marketing messages that connect environmental product attributes with desired consumer value (for example, “pesticide-free produce is healthier”; “energy-efficiency saves money”; or “solar power is convenient”).
- Frame environmental product attributes as “solutions” for consumer needs

(for example, “rechargeable batteries offer longer performance”).

- Create engaging and educational Internet sites about environmental products’ desired consumer value (for example, Tide Coldwater’s interactive Web site allows visitors to calculate their likely annual money savings based on their laundry habits, utility source (gas or electricity), and zip code location).

Credibility of Product Claims

- Employ environmental product and consumer benefit claims that are specific, meaningful, unpretentious, and qualified (that is, compared with comparable alternatives or likely usage scenarios).
- Procure product endorsements or eco-certifications from trustworthy third parties, and educate consumers about the meaning behind those endorsements and eco-certifications.
- Encourage consumer evangelism via consumers’ social and Internet communication networks with compelling, interesting, and/or entertaining information about environmental products (for example, Tide’s “Coldwater Challenge” Web site included a map of the United States so visitors could track and watch their personal influence spread when their friends requested a free sample).

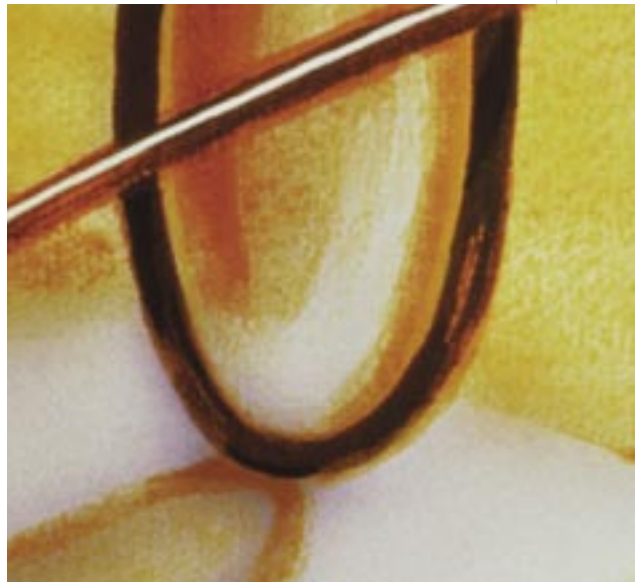
growing pollution and resource consumption in Asia, and political pressures to address climate change are driving innovation toward healthier, more-efficient, high-performance products. In short, all marketing will incorporate elements of green marketing.

As the authors of *Natural Capitalism* argue, a more sustainable business model requires “product dematerialization”—that is, commerce will shift from the “sale of goods” to the “sale of services” (for example, providing illumination rather than selling light bulbs).⁷⁹ This model is illustrated, if unintentionally, by arguably the twenty-first century’s hottest product—Apple’s iPod. The iPod gives consumers the convenience to download, store, and play tens of thousands of songs without the environmental impact of manufacturing and distributing CDs, plastic jewel cases, and packaging.

Innovations that transform material goods into efficient streams of services could proliferate if consumers see them as desirable. To encourage energy and water efficiency, Electrolux piloted a “pay-per-wash” service in Sweden in 1999 where consumers were given new efficient washing machines for a small home installation fee and then were charged 10 Swedish kronor (about \$1) per use. The machines were connected via the Internet to a central database to monitor use, and Electrolux maintained ownership and servicing of the washers. When the machines had served their duty, Electrolux took them back for remanufacturing. Pay-per-wash failed, however, because consumers were not convinced of its benefits over traditional ownership of washing machines.⁸⁰ Had Electrolux better marketed pay-per-wash’s convenience (for example, virtually no upfront costs for obtaining a top-of-the-line washer, free servicing, and easy trade-ins for upgrades) or bundled pay-per-wash with more desirable features, consumers might have accepted the green service. To avoid green marketing myopia, the future success of product dematerialization and

more sustainable services will depend on credibly communicating and delivering consumer-desired value in the marketplace. Only then will product dematerialization steer business onto a more sustainable path.

Jacquelyn A. Ottman is president of J. Ottman Consulting, Inc. in New York and author of *Green Marketing: Opportunity for Innovation*, 2nd edition (NTC Business Books, 1997). She can be reached at jaottman@greenmarketing.com. Edwin R. Stafford is an associate professor of marketing at Utah State University, Logan. He researches the strategic marketing and policy implications of clean technology (also known as “cleantech”) and is the co-principal investigator for a \$1 million research grant from the U.S. Department of Energy on the diffusion of wind power in Utah. He may be reached at ed.stafford@usu.edu. Cathy L. Hartman is a professor of marketing at Utah State University, Logan. Her research centers on how interpersonal influence and social systems affect the diffusion of ideas and clean products and technology. She is principal investigator on a \$1 million U.S. Department of Energy grant for developing wind power in the state of Utah. She can be contacted at cathy.hartman@usu.edu.



NOTES

1. G. Fowler, “Green Sales Pitch Isn’t Moving Many Products,” *Wall Street Journal*, 6 March 2002.
2. See, for example, K. Alston and J. P. Roberts, “Partners in New Product Development: SC Johnson and the Alliance for Environmental Innovation,” *Corporate Environmental Strategy* 6, no. 2: 111–28.
3. See, for example, J. Ottman, *Green Marketing: Opportunity for Innovation* (Lincolnwood [Chicago]: NTC Business Books, 1997).
4. P. Hawken, A. Lovins, and L. H. Lovins, *Natural Capitalism: Creating the Next Industrial Revolution* (Boston: Little, Brown, and Company, 1999).
5. See, for example, *Business Week*, “Alternate Power: A Change in the Wind,” 4 July 2005, 36–37.
6. See T. L. Friedman, “Geo-Greening by Example,” *New York Times*, 27 March 2005; and T. L. Friedman, “The New ‘Sputnik’ Challenges: They All Run on Oil,” *New York Times*, 20 January 2006.
7. There is some debate as to how to define a “green consumer.” Roper ASW’s most recent research segments American consumers by their propensity to purchase environmentally sensitive products into five categories, ranging from “True Blue Greens,” who are most inclined to seek out and buy green on a regular basis (representing 9 percent of the population), to “Basic Browns,” who are the least involved group and believe environmental indifference is mainstream (representing 33 percent of the population); see Roper ASW “Green Gauge Report 2002: Americans Perspective on Environmental Issues—Yes . . . But,” November 2002, http://www.windustry.com/conferences/november2002/nov2002_proceedings/plenary/greenguage2002.pdf (accessed 7 February 2006).

Alternatively, however, some marketers view green consumers as falling into three broad segments concerned with preserving the planet, health consequences of environmental problems, and animal welfare; see Ottman, note 3 above, pages 19–44. Because environmental concerns are varied, ranging from resource/energy conservation to wildlife protection to air quality, marketing research suggests that responses to green advertising appeals vary by consumer segments. For example, in one study, young college-educated students were found to be drawn to health-oriented green appeals, whereas working adults were more responsive toward health, waste, and energy appeals; see M. R. Stafford, T. F. Stafford, and J. Chowdhury, “Predispositions Toward Green Issues: The Potential Efficacy of Advertising Appeals,” *Journal of Current Issues and Research in Advertising* 18, no. 2 (1996): 67–79. One of the lessons from the study presented here is that green products must be positioned on the consumer value sought by targeted consumers.

8. A. Grubler, “Doing More with Less: Improving the Environment through Green Engineering,” *Environment* 48, no. 2 (March 2006): 22–37.

9. See, for example, L.A. Crosby and S. L. Johnson, “Customer-Centric Innovation,” *Marketing Management* 15, no. 2 (2006): 12–13.

10. The methodology for this article involved reviewing case descriptions of green products discussed in the academic and business literature to identify factors contributing to consumer acceptance or resistance. Product failure was defined as situations in which the green product experienced very limited sales and ultimately was either removed from the marketplace (such as General Motor’s EV1 electric car and Electrolux’s “pay-per-wash” service) or re-positioned in the marketplace (such as Philips’ “EarthLight”). Product success was defined as situations in which the green product attained consumer acceptance and was widely available at the time of the analysis. Particular attention centered on the market strategies and external market forces of green products experiencing significant growth (such as gas-electric hybrid cars and organic foods), and the study examined their market context, pricing, targeted consumers, product design, and marketing appeals and messages.

11. See T. Levitt, “Marketing Myopia,” *Harvard Business Review* 28, July–August (1960): 24–47.

12. A. D. Lee and R. Conger, “Market Transforma-

tion: Does it Work? The Super Energy Efficient Refrigerator Program," *ACEEE Proceedings*, 1996, 3.69–3.80.

13. *Ibid.*

14. The California Air Resources Board (CARB) adopted the Low-Emission Vehicle (LEV) regulations in 1990. The original LEV regulations required the introduction of zero-emission vehicles (ZEVs) in 1998 as 2 percent of all vehicles produced for sale in California, and increased the percentage of ZEVs from 2 percent to 10 percent in 2003. By 1998, significant flexibility was introduced through partial ZEV credits for very-low-emission vehicles. For a review, see S. Shaheen, "California's Zero-Emission Vehicle Mandate," *Institute of Transportation Studies*, Paper UCD-ITS-RP-04-14, 2 September 2004.

15. C. Palmeri, "Unplugged," *Business Week*, 20 March 2006, 12.

16. "Think Tanks," *Automotive News*, 6 March 2006, 42; J. Ottman, "Lessons from the Green Graveyard," *Green@Work*, April 2003, 62–63.

17. J. Lawrence, "The Green Revolution: Case Study," *Advertising Age*, 29 January 1991, 12.

18. See Roper ASW, note 7 above.

19. "Fuel Economy: Why You're Not Getting the MPG You Expect," *Consumer Reports*, October 2005, 20–23.

20. J. O'Dell, "Prices Soar for Hybrids with Rights to Fast Lane," *Los Angeles Times*, 27 August 2005.

21. M. Landler and K. Bradsher, "VW to Build Hybrid Minivan with Chinese," *New York Times*, 9 September 2005.

22. K. Carter, "'Hybrid' Cars Were Oscars' Politically Correct Ride," *USA Today*, 31 March 2003.

23. See, for example, H. W. Jenkins, "Dear Valued Hybrid Customer . . .," *Wall Street Journal*, 30 November 2005; E. R. Stafford, "Conspicuous Conservation," *Green@Work*, Winter 2004, 30–32. A recent Civil Society Institute poll found that 66 percent of survey participants agreed that driving fuel efficient vehicles was "patriotic"; see Reuters, "American See Fuel Efficient Cars as 'Patriotic,'" 18 March 2005, <http://www.planetark.com/avantgo/dailynewsstory.cfm?newsid=29988>.

24. "Rising Consumer Interest in Hybrid Technology Confirmed by Maritz Research," PRNewswire, 5 January 2006.

25. O'Dell, note 20 above.

26. J. Fetto, "The Baby Business," *American Demographics*, May 2003, 40.

27. See D. McGinn, "The Green Machine," *Newsweek*, 21 March 2005, E8–E12; and J. Weber, "A Super-Natural Investing Opportunity," *Business 2.0*, March 2005, 34.

28. A. Murray, "Can Wal-Mart Sustain a Softer Edge?" *Wall Street Journal*, 8 February 2006.

29. C. Tan, "New Incentives for Being Green," *Wall Street Journal*, 4 August 2005.

30. For an overview of the Leadership in Energy and Environmental Design Green Building Rating Sys-

tem, see <http://www.usgbc.org>. The 69-point LEED rating system addresses energy and water use, indoor air quality, materials, siting, and innovation and design. Buildings can earn basic certification or a silver, gold, or platinum designation depending on the number of credits awarded by external reviewers. Critics charge, however, that the costly and confusing administration of the LEED system is inhibiting adoption of the program and impeding the program's environmental objectives; see A. Schendler and R. Udall, "LEED is Broken: Let's Fix It," *Grist Magazine*, 16 October 2005, <http://www.grist.com/comments/soapbox/2005/10/26/leed/index1.html>.

31. GreenBiz.com, "Survey: Home Builders Name Energy Efficiency as Biggest Industry Trend," 26 January 2006, http://www.greenerbuildings.com/news_details.cfm?NewsID=30221.

32. D. Smith, "Conservation: Building Grows Greener in Bay Area," *San Francisco Chronicle*, 1 June 2005.

33. E. Beck, "Earth-Friendly Materials Go Mainstream," *New York Times*, 5 January 2006, 8.

34. J. M. Ginsberg and P. N. Bloom, "Choosing the Right Green Marketing Strategy," *MIT Sloan Management Journal*, Fall 2004: 79–84.

35. Tan, note 29 above.

36. Tan, note 29, above.

37. C. C. Berk, "P&G Will Promote 'Green' Detergent," *Wall Street Journal*, 19 January 2005.

38. K. McLaughlin, "Has Your Chicken Been Drugged?" *Wall Street Journal*, 2 August 2005; and E. Weise, "Are Our Products Our Enemy?" *USA Today*, 13 August 2005.

39. McLaughlin, *ibid.*

40. Alston and Roberts, note 2 above.

41. R. Leiber, "The Dirt on Green Housecleaners," *Wall Street Journal*, 29 December 2005.

42. M. Alexander, "Home Improved," *Readers Digest*, April 2004, 77–80.

43. For example, see D. Leonhardt, "Buy a Hybrid, and Save a Guzzler," *New York Times*, 8 February 2006.

44. See, for example, D. Cave, "It's Not Sexy Being Green (Yet)," *New York Times*, 2 October 2005.

45. G. Chon, "Toyota Goes After Copycat Hybrids; Buyers are Asked to Believe Branded HSD Technology is Worth the Extra Cost," *Wall Street Journal*, 22 September 2005.

46. B. G. Hoffman, "Ford: Now It's Easy Being Green," *Detroit News*, 31 January 2006.

47. See W. McDonough and M. Braungart, *Cradle to Cradle: Remaking the Way We Make Things* (New York: North Point Press, 2002).

48. R. Smith, "Beyond Recycling: Manufacturers Embrace 'C2C' Design," *Wall Street Journal*, 3 March 2005.

49. K. Hafen, "Preston Festival Goes LED," *Logan Herald Journal*, 21 September 2005.

50. O'Dell, note 20 above.

51. A. Covarrubias, "In Carpool Lanes, Hybrids Find Cold Shoulders," *Los Angeles Times*, 10 April 2006.

52. M. Clayton, "Hot Stuff for a Cool Earth," *Christian Science Monitor*, 21 April 2005.

53. See Ogilvy & Mather Topline Report, *China Energy-Efficient CFC-Free Refrigerator Study* (Beijing: Ogilvy & Mather, August 1997); E. R. Stafford, C. L. Hartman, and Y. Liang, "Forces Driving Environmental Innovation Diffusion in China: The Case of Green-freeze," *Business Horizons* 9, no. 2 (2003): 122–35.

54. J. Baker, Jr., K. Denby, and J. E. Jerrett, "Market-based Government Activities in Texas," *Texas Business Review*, August 2005, 1–5.

55. T. Harris, "Austinites Apply to Save With Wind Power," *KVUE News*, 13 February 2006.

56. J. Ottman, note 3 above.

57. J. Ottman, note 3 above.

58. Generation Green, "Splenda Letter to Federal Trade Commission," 13 January 2005, http://www.generationgreen.org/2005_01-FTC-letter.htm (accessed 7 February 2006).

59. J. Davis, "Strategies for Environmental Advertising," *Journal of Consumer Marketing* 10, no. 2 (1993): 23–25.

60. S. Farah, "The Thin Green Line," *CMO Magazine*, 1 December 2005, http://www.cmomagazine.com/read/120105/green_line.html (accessed 9 February 2006).

61. *Ibid.*

62. See Jenkins, note 23 above.

63. See Farah, note 60 above.

64. M. Maynard, "E.P.A. Revision is Likely to Cut Mileage Ratings," *New York Times*, 11 January 2006.

65. For a more comprehensive overview of eco-certifications and labeling, see L.H. Gulbrandsen, "Mark of Sustainability? Challenges for Fishery and Forestry Eco-labeling," *Environment* 47, no. 5 (2005): 8–23.

66. For a comprehensive overview of other eco-certifications, see Consumers Union's Web site at <http://www.eco-labels.org/home.cfm>.

67. Gulbrandsen, note 65 above, pages 17–19.

68. Farah, note 60 above.

69. Farah, note 60 above.

70. See GE Global Research, *Clean Coal*, http://ge.com/research/grc_2_1_3.html (accessed 16 April 2006).

71. A. Griscom Little, "It Was Just My Ecomagination," *Grist Magazine*, 10 May 2005, <http://grist.org/news/muck/2005/05/10/little-ge/index.html>.

72. E. Rosen, *The Anatomy of Buzz: How to Create Word-of-Mouth Marketing* (New York: Doubleday, 2000).

73. Viral marketing is a form of "word-of-mouth" buzz marketing defined as "the process of encouraging honest communication among consumer networks, and it focuses on email as the channel." See J.E. Phelps, R. Lewis, L. Mobilio, D. Perry, and N. Raman, "Viral Marketing or Electronic Word-of-Mouth Advertising: Examining Consumer Responses and Motivation to Pass Along Email," *Journal of Advertising Research* 44, no. 4 (2004): 333–48.

74. G. Ramsey, "Ten Reasons Why Word-of-Mouth Marketing Works," *Online Media Daily*, 23 September 2005, <http://publications.mediapost.com/index.cfm?fuseaction=Articles.san&s=34339&Nid=15643&p=114739> (accessed 16 February 2006).

75. See Rosen, note 72 above.

76. Ramsey, note 74 above.

77. Tide press release, "ColdWater Challenge Reaches One Million," <http://www.tide.com/tidecoldwater/challenge.html> (accessed 13 September 2005).

78. L. Prescott, "Case Study: Tide Boosts Traffic 9-fold," *iMedia Connection*, 30 November 2005, <http://www.imdiaconnection.com/content/7406.asp>.

79. Hawken, Lovins, and Lovins, note 4 above; see also A. B. Lovins, L. H. Lovins, and P. Hawken, "A Road Map for Natural Capitalism," *Harvard Business Review*, May–June 1999, 145–58.

80. J. Makower, "Green Marketing: Lessons from the Leaders," *Two Steps Forward*, September 2005, http://makower.typepad.com/joel_makower/2005/09/green_marketing.html.

ENVIRONMENT[®]

**A great
classroom resource!**

**Check out
www.heldref.org/env.php
for lists of articles by topic.**

New books from The MIT Press



Water Resource Economics

The Analysis of Scarcity, Policies, and Projects
Ronald C. Griffin

“Griffin’s wonderful text provides balanced and insightful coverage of the economics and management of water resources. I recommend it strongly.” — David Zilberman, University of California, Berkeley
432 pp., 55 illus. \$50



The Landscape of Reform

Civic Pragmatism and Environmental Thought in America
Ben A. Minteer

“Ben Minteer provides a map for us to consider the new kind of civic-based environmentalism of the 21st century, with its emphasis on the health of the land and the people who inhabit it.” — Robert Gottlieb, Occidental College, author of *Forcing the Spring: The Transformation of the Environmental Movement*
272 pp., 5 illus. \$28

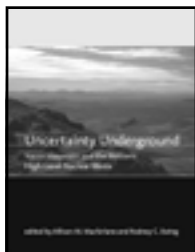


Institutional Interaction in Global Environmental Governance

Synergy and Conflict among International and EU Policies

edited by Sebastian Oberthür and Thomas Gehring
foreword by Oran R. Young

“There is new compulsory reading for the international environmental governance community: this groundbreaking collection demonstrates convincingly that we must devote more systematic attention to institutional interaction.” — Jutta Brunnée, University of Toronto
424 pp., 23 illus. \$28 paper



Uncertainty Underground

Yucca Mountain and the Nation’s High-Level Nuclear Waste

edited by Allison M. Macfarlane and Rodney C. Ewing

“A well-chosen set of articles by technical experts describing the technology and regulatory process for developing the Yucca Mountain repository.” — John F. Ahearne, former chairman, US Nuclear Regulatory Commission
416 pp., 58 illus. \$29 paper



What’s the Beef?

The Contested Governance of European Food Safety
edited by Christopher Ansell and David Vogel

“Assembles contributions by internationally renowned experts on food regulation, a topic of considerable importance. Authoritative and wide-ranging, it will be a key addition to the literature.” — Wyn Grant, University of Warwick
400 pp., 2 illus. \$27 paper

China Shifts Gears

Automakers, Oil, Pollution, and Development
Kelly Sims Gallagher

“I am very impressed with this book. Gallagher addresses the extremely important question of whether foreign direct investment can be an effective vehicle for the transfer of clean technology, in particular in the automotive sector.” — Judith Shapiro, American University, author of *Mao’s War Against Nature: Politics and the Environment in Revolutionary China*
216 pp., 12 illus. \$21 paper

Governing Environmental Flows

Global Challenges to Social Theory
edited by Gert Spaargaren, Arthur P. J. Mol, and Frederick H. Buttel

“This is an accomplished and thoughtful collection, indispensable for all those interested in contemporary environmental sociology and related fields.” — Michael Redclift, King’s College London
392 pp., 21 illus. \$27 paper

Fairness in Adaptation to Climate Change

edited by W. Neil Adger, Jouni Paavola, Saleemul Huq, and M. J. Mace

“A timely source of information and analysis that will be valuable in determining actions for meeting the threat of climate change post-2012. The contributors provide important insights into the critical issues of burden sharing and equity considerations, which must define the global approach in this area.” — R.K. Pachauri, Director-General, The Energy and Resources Institute, New Delhi
312 pp., 17 illus. \$25 paper

now in paperback

Diamond

A Struggle for Environmental Justice in Louisiana’s Chemical Corridor
Steve Lerner, foreword by Robert D. Bullard

“Steve Lerner’s story of Diamond, Louisiana, is one of the most remarkable tales that has ever been told about the environmental justice movement.” — *Dissent*
344 pp., 15 illus. \$14.95 paper

now in paperback

Writing on Air

edited by David Rothenberg and Wandee J. Pryor

“A superb anthology. It successfully integrates science and imagination, using narrative, memory, and metaphor to convey complex environmental and biospheric concepts.” — Mitchell S. Thomashow, Antioch New England Graduate School
288 pp., 28 illus. \$14.95 paper

<http://mitpress.mit.edu>

To order call
800-405-1619.