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THE ENERGY RACE

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EXECUTIVE SUMMARY

The Energy Race is under way, driven largely by economic rather than ecological incentives. Governments, investors and entrepreneurs are all ramping up efforts to reduce dependence on fossil fuels. Doing so won't be easy or cheap, although numerous innovative ideas are being developed around the world. Among consumers, the conservation movement has been democratized, and interest in green living is surging. Consumers feel better about consumption when they buy from brands and retailers that embrace a green ethic, and businesses that adopt forward-thinking sustainability policies will come out ahead.

Key Questions

- Why is clean energy an important goal, and how has it become a priority around the globe?
- What's the role of the public sector in the Energy Race? The private sector? Which countries are making significant commitments to alternative energy?
- What alternative energy sources are attracting the most interest and funding?
- How are consumer priorities changing when it comes to energy conservation, and how are businesses addressing these new priorities?

Key Findings

Climate-change skeptics have lost their footing, but the prospect of global warming is only one factor driving the Energy Race. The current international scramble for energy has serious political and economic ramifications for governments and consumers alike.

The $50 billion stimulus provision for green energy in the U.S. represents a major step forward for the Energy Race. But it will take trillions of dollars of investment by governments, and a long-term commitment to policy change, to reduce the world's dependence on fossil fuels.

With serious initiatives now under way everywhere from the EU to Africa, investors and businesses are starting to make bigger bets on green energy. But at this stage, it's unclear which clean energy solution will come out ahead—many ideas are being developed that may one day prove more viable than today's leading options, such as solar power and wind energy.

As government and investors work to fund green energy projects, more people are thinking about how they impact the planet and acting accordingly—buying hybrid cars, purchasing carbon offsets, etc. Businesses that respond will come out ahead.

Indeed, there are many practical benefits in innovating and adopting green energy technology. Corporations, communities and governments are fast coming to understand just how powerful, and profitable, a role in the Energy Race can be.

For years, environmentalists and ecologically aware nations have been calling for energy reform. They've pointed to rising ocean temperatures, dwindling biodiversity, rising carbon emissions. Now, Arctic sea ice be damned—the Energy Race is being catalyzed by economic, not ecological drivers.

For starters, the man in the White House thinks alternative energy is just the thing to cure America's economic ills—and he's written a $50 billion prescription. It's a key component of Barack Obama's stimulus package, based on the thinking that energy development and conservation can not only foster energy independence but create jobs and spark innovation.

A huge influx of American capital—so absent for so long—is bound to jump-start the global market, pushing investors to make their bet, inventors to find their funding and governments to implement innovative programs. As "shovel ready" projects (those that are ready to go but lack funding) start coming to market in the U.S., capitalists worldwide are fast realizing that it's time to get to work.

Innovation will come out of university labs, corporate R&D departments and residential garages. Engineers in Chennai will compete and collaborate with businessmen in Berlin, ethanol producers in São Paolo and venture capitalists in Silicon Valley.

In true flat world spirit, it seems the playing field is level. Despite America's titanic investment, President Obama might find that revving up green energy in the United States—with its powerful oil and coal lobbies and crippled automotive industry—is a bit like turning around the Titanic. Today's frontrunners are the European Union, which leads in wind power, and Japan, an innovator in hybrid energy and hydrogen power. China, now the world's top greenhouse gas emitter, has embarked on a huge energy-efficiency campaign that includes building wind, solar and hydroelectric power installations.

It's time for the economies of the world to get on track for the Energy Race. It's going to be a very long drive.

APOCALYPSE NIGH?

For decades, climate scientists were treated like soapbox preachers shouting that "The end is near." Their Birkenstock-shod warnings about melting ice caps and rising emissions seemed dire, distasteful and a bit unbelievable. The housing market was brisk, oil prices were low and the digital age was close at hand. Climate change evangelists seemed to be acid-raining on everyone's parade.

If only. Twelve years after the Kyoto Protocol was first signed, the skeptics have lost their footing. Public debate now focuses on how best to control climate change, not whether human beings have their hand on the global thermostat. Many have agreed that climate change is real. Too bad we didn't do so sooner.

We've all been like the proverbial frog in the bucket. Mother Nature has been turning up the temperature by degrees, and the change has been so slight that we almost didn't notice.

Yes, Arctic sea ice has been melting at headline-making speed. Yes, we've seen the pictures of polar bears stranded on lonely ice floes. But the Arctic may as well be a distant star. What has hit home for most people are the tulips popping up in winter, warmer trout streams and fewer angling spots, dried-up oyster beds and short pants in the fall. Add to that catastrophes like Hurricane Katrina and Australia's nine-year drought, nicknamed "The Big Dry," and the public has finally taken notice.

The consensus is clear: We have to stop the bucket from getting any hotter.

When exactly did we start stoking this fire? Around the time of the Industrial Revolution in the mid-18th century, and for the previous 10,000 years or so, the atmosphere had about 280 parts per million by volume of carbon dioxide in the air (i.e., if we could have cut out a block containing a million molecules of air, it would have held 280 molecules of CO2).

"Civilization grew up in a world whose thermostat was set by that number," notes Bill McKibben in *National Geographic*. "It equated to a global average temperature of about 57 degrees Fahrenheit, which in turn equated to all the places we built our cities, all the crops we learned to grow and eat, all the water supplies we learned to depend on, even the passage of the seasons that, at higher latitudes, set our psychological calendars."

Then we started burning coal and gas and oil to power our lives, and deforesting the land to make way for large farms and tract housing. Today, that block of air would contain roughly 384 CO2 molecules, and we're on track to add another 100 parts per million in the next 50 years. "Until recently, there's been no clear data suggesting the point at which catastrophe looms," McKibben explains. "The past couple of years have seen a series of reports indicating that 450 parts per million CO2 is a threshold we'd be wise to respect."

As it is, scientists have predicted that the Greenland and Antarctic ice sheets will melt by 2010, and the sea level will rise up to 1 meter, according to research presented at the International Scientific Congress on Climate Change

in Copenhagen this March. A higher sea level could displace up to 10 percent of the world's population, the research suggests, or 600 million people living in low-lying areas.

"We can't stop global warming. Our task is less inspiring: to contain the damage, to keep things from getting out of control," McKibben writes.

If the climate change argument doesn't strike you as particularly compelling, consider the political and economic ramifications of the international energy scramble.

Not only does it cause countries to turn a blind eye to some human rights atrocities, it also provides an unending stream of revenue for nations whose leaders support terrorist and insurgent groups, the same groups that energy-consuming countries are trying to squash. As former CIA head Jim Woolsey has said, "We are funding the rope for the hanging of ourselves."

Finally, by sticking with fossil fuels, we ensure that we will never move beyond the Industrial Revolution. Even in the so-called Digital Era, nearly every bit and byte we consume is powered by coal and oil-based energy. As Google Energy Czar Bill Weihl has said, "Coal is very cheap. It's dirt. You dig it up, you burn it." (Google itself has installed solar photovalvic panels on eight buildings at its Mountain View, Calif., headquarters, generating 30 percent of peak energy needs there.)

The potential for cleaner energy from renewable sources won't be fully explored as long as we rely on cheap, dirty, traditional fuels, providing few incentives for energy companies to move beyond them. Oil has provided generous profits—why bet on a long shot when you have a sure thing? "Industry can't justify spending billions and billions of dollars on things that might have a 10- or 20- or 30-year payback, and might never pay back or might pay back to society but not to that company," Weihl said on the National Public Radio show *The Takeaway*. "That's where government comes in."

For example, while Norway is the top natural gas producer in Europe, the government has drafted power companies into the country's renewable-energy efforts, prompting innovations like salt power and floating wind turbines that can operate in the open ocean. Similarly, European countries including Denmark, Spain and Germany have required their power companies to generate a marked percentage of wind power each year. That requirement has spurred three generations of advancements in wind turbine technology at General Electric, Friedman writes. But demand in the EU isn't enough to put GE all in. What is?

"If you had a national renewable-energy mandate that covered all 50 [U.S.] states," GE CEO Jeffrey Immelt told Friedman, "that would tell me that there is going to be so much demand for wind or solar or geothermal, you can make a really big bet."

THE BIG BET

In 1957, the world waited. Divided into two Cold War camps—American and Soviet, Capitalist and Communist, Us and Them—they waited for war, for nuclear strikes, for détente. But something else happened. On October 4, the Soviet Union launched Sputnik into space. The Space Race was afoot.

The Space Race brought a note of optimism to otherwise dark days. Suddenly, humanity was looking up to the sky instead of down into their basement bunkers. It brought the excitement of a spectator sport to the Cold War, complete with teams and star players. Gangly rocket scientists and dashing astronauts (or cosmonauts) were the media heroes. Rocket kits and ray guns flew off store shelves. Humanity was moving forward.

Today, we struggle with terrorism, a warming earth and a failing global economy. In his February address to the U.S. Congress, President Barack Obama could not resist a comparison with the Cold War: "A twilight struggle for freedom led to a nation of highways, an American on the moon and an explosion of technology that still shapes our world."

Obama's own Sputnik—the $50 billion stimulus provision for green energy—made clear that the U.S. would be a late but heavyweight contender in the Energy Race. "I don't accept a future where the jobs and industries of tomorrow take root beyond our borders," Obama told his audience.

In his book *Hot, Flat, and Crowded*, Thomas Friedman cites an old Chinese adage: "When the wind changes direction, there are those who build walls and those who build windmills." Those who build windmills today, literally, are likely to find themselves ahead of the curve tomorrow.

It won't be easy, however. Reducing global dependence on fossil fuels will require a "revolution" in science and technology, U.S. Energy Secretary Stephen Chu told *The New York Times* recently. It will take trillions of dollars of investment by governments around the world and a long-term commitment to the cause to make it happen.

Google's Weihl is convinced that the kind of commitment needed to solve the energy problem is beyond the reach of private enterprise, even a company as endowed as his (Google has invested in two solar thermal energy companies and a company working on capturing electricity generated by the jet stream). What's really needed, he said, is "a strong role for government to fund either collaborative industry research or university research or research at national labs to really try to drive innovation."

This kind of investment might have the additional benefit of jump-starting the economy. In February, the United Nations Environment Programme called on wealthy nations to craft a "global green 'New Deal'" as the smartest way to address the recession. In an op-ed published in newspapers around the world, UNEP Executive Director Achim Steiner cited efforts by Korea, which is losing jobs for the first time in more than five years. This year, it plans to spend $38 billion cleaning up four major rivers and building eco-friendly high-speed

railways, hundreds of kilometers of bike lanes and a plant that will cull energy from the methane emitted by landfills.

Governments around the world are making commitments to long-term change. The European Union last year committed to generating at least 20 percent of its energy from renewable sources, such as wind and biofuels, by 2020. In India, the government has introduced a biofuels policy that will require 20 percent of its diesel be made from plants. China's new energy policy includes a provision requiring factories to burn clean fuels first and rebates on purchases of hybrid and electric automobiles. Energy-starved African nations like Kenya are exploring ways to build a renewable-energy power grid from the ground up, using options like wind and geothermal energy (electricity generated from heat beneath the earth's surface).

Initiatives like these are just the kinds of signals that investors and corporations need to see before they make their own big bets. In his op-ed, Steiner is positively bullish about the prospects of a green energy economy:

> *The trillions of dollars that have been mobilized to address current woes, together with the trillions of investors' dollars waiting in the wings, represent an opportunity that was unthinkable only 12 months ago: the chance to steer a more resource-efficient and intelligent course that can address problems ranging from climate change and natural resource scarcity to water shortages and biodiversity loss.*

Energy skeptics, however, point to falling fuel prices as a reason to proceed cautiously, if at all. While the cost of oil was at an all-time high last summer—greatly motivating alternative energy investors and innovators—it's come down significantly, aided by a global manufacturing collapse. What's more, the manufacturing falloff has lowered the price of carbon credits, the emissions trading scheme that the European Union, along with parts of Asia and Africa has used to help contain greenhouse gases, are also using such schemes. Lower oil prices make clean energy—already more expensive per kilowatt—look even more pie in the sky.

Those who point to lower fuel prices miss the point, however: Investing in green energy is the only way to ensure that oil prices don't go back up, potentially crippling energy-consuming countries.

THE SMALL BETS

"You've seen those poker games on TV when the guy from Las Vegas wearing sunglasses and his baseball cap backward takes his whole pile of chips and says 'All in,'" writes Friedman in *Hot, Flat, and Crowded*. "That is what we want to see America's best industrial-innovation companies doing."

But investing in alternative energy is less like a poker game and more like a roulette table. The odds are very long, and you don't know which of many possibilities will provide the biggest payoff. There are the major players—solar, wind and corn-based ethanol—but there's also potential in manure-based

power, algae-based fuel, salt power, tidal power, high-altitude wind and fuel cell technology. Each technology has its boosters, but each also has drawbacks.

Wind is an intermittent power source and not efficiently harnessed. Current wind turbines, which churn about 80 meters off the ground, don't access a strong, steady supply of wind and will have to be built at least twice as high in order to do so, according to Google's Weihl. But wind's high-profile proponents include former oilman T. Boone Pickens, who's attempting to build the world's biggest wind farm in Texas. He's also written the "Pickens Plan," an agenda that would "create millions of new jobs by building out the capacity to generate up to 22 percent of our electricity from wind."

Solar too has its problems. It's already in use worldwide, particularly in Spain, and major solar projects are under way in California's Mojave Desert, Ashalam in Israel and Mildura in Australia. But like wind, solar power is intermittent—a battery system that could store the energy when skies are gray has yet to be developed—and a silicon shortage is making the panels even more expensive to build.

Corn-based ethanol, once a golden hope for fuel independence in the U.S., now has a growing number of detractors. The industry is being blamed for helping to push up food prices and for causing health problems (the nitrogen and ammonia used in fertilizers burn off in exhaust, causing heart disease and respiratory problems).

There are myriad other approaches. For example, some see a solution in poop power. In Alberta, Canada, farmers are harnessing the methane produced by their cattle; in the U.S., Pacific Gas and Energy and BioEnergy Solutions began producing energy from the same smelly source in March.

Norway's state-owned power company is working on an exotic technology that involves tapping the country's freshwater and saltwater supplies, according to an *Economist* report. Drawing freshwater across a semi-permeable membrane dilutes the saltwater, builds up pressure and powers an electrical turbine. Norway has already spent 10 years and 100 million kroner (about $17 million) developing this technology, the type of long-term investment that a private enterprise might not be willing to make.

The fact is, there is no magic bullet, no sure-shot solution. Investors and governments will have to take a shotgun aim and hope they hit on a profitable outcome.

Silicon Valley investment firm Kleiner Perkins Caufield & Byers is doing just that. Featured in a *New York Times Magazine* article headlined "Capitalism to the Rescue," the investment firm has already doled out $1 billion to 40 green tech companies since the autumn of 2008. Not every investment will be a winner—indeed, Kleiner's investment plan is known internally as "The Map of Grand Challenges."

The company is making bets on "water, transportation, energy efficiency, electricity generation, energy storage and the like," wrote reporter Jon Gertner. "In short, ideas that might produce huge changes, and, if Kleiner bought a stake,

huge profits. Thus the grand map was a rough, imaginary outline of a clean energy economy that didn't really exist and perhaps wouldn't in any meaningful way for decades."

One venture where the chips are piled high for Kleiner is Bloom Energy, a company that is getting set to deploy a 5 kilowatt fuel cell that produces about enough electricity to power the average home. Someday, a 100 kilowatt version could power entire neighborhoods, a promising notion for the developing world, where some 2 billion people live without electricity, according to company founder K.R. Sridhar.

Kleiner is pitching another venture, Ausra, a solar thermal energy company, to the emir of Qatar. The company uses concentrated solar energy on water pipes to produce steam and, in turn, electricity.

A CLOSER LOOK
BITS & BYTES ON THE ENERGY RACE

SEVERAL AMERICAN UNIVERSITIES are offering or planning to offer four-year undergraduate degrees in renewable energy. They include the Oregon Institute of Technology, the State University of New York, Illinois State University and the Appalachian State University in North Carolina.

NORWAY ANNOUNCED IN October 2008 it will double its renewable energies research fund to $3.4 billion.

CONSULTANTS ROLAND BERGER expect the worldwide market for environmental technology to rise from about $1.3 trillion currently to $2.7 trillion by 2020.

THE U.N. HAS lauded the world's only tidal power plant in Brittany, France, as a successful green energy initiative. The Rance plant has run for more than 30 years, recouped its initial investment and done so without any technical failures.

JOINING OTHER COUNTRIES including the U.K. and France, Japan is introducing carbon-footprint labels for certain consumer goods. As an example, the government reported that a packet of potato chips produces 75 grams of CO2.

AUSTRALIA'S 2008-2009 budget includes AU$3.9 billion for making 1.1 million homes more energy-efficient. The government hopes the investment will create jobs and stimulate the economy.

"IN GERMANY, ENVIRONMENTAL technology is expected to quadruple over the coming years, reaching 16 percent of manufacturing output by 2030 and employing more people than the auto industry." *—Ban Ki-moon, United Nations Secretary-General, in the* Gulf Times

GREEN ENERGY SHARES were among the hardest hit by the plummeting stock market, reports *Barron's*: "The 88-stock WilderHill New Energy Global Innovation index, a popular green-industry benchmark, ended the year down 61 percent, versus a 38.5 percent slide in the Standard & Poor's 500. This year, the NEX—a mix of mostly small- to mid-capitalization wind, solar, biofuel and energy-conservation leaders from 21 countries—is off about 22 percent, lagging the S&P's 17 percent decline." *—"The Smart Way to Play the Green Revolution,"* Barron's, *March 2, 2009*

IN 2006, GREEN venture capital accounted for 19 percent of China's investments, according to the United Nations Environment Programme.

THE U.N. ESTIMATES that about 2.3 million people are employed in green jobs around the world. About 300,000 of these work in wind power and another 170,000 in solar power. And as many as 600,000 people in China work with solar thermal energy.

THE GREEN PARTY PEOPLE

As government and deep-pocketed investors work from the top down to fund green energy projects, consumer interest in living green pushes from the bottom up.

More people are thinking about how their lives impact the planet and how they can help by living and working in a more environmentally friendly fashion. The conservation movement has been democratized, at least in the developed world. In the U.S., "it is no longer an elite issue for those living on the West and East coasts or in the backwoods of Colorado or Vermont," writes Friedman in *Hot, Flat, and Crowded*.

While hybrid cars have been regarded almost as luxury purchases, as writer Daniel Gross points out on Slate.com, that's changing. Blue-collar workers—taxi drivers, truckers, construction workers—are looking to hybrids to save on gas. And if those savings come with the added benefit of helping the earth, all the better. Hybrid car sales are expected to double in North America by 2012, according to a 2008 forecast by R.L. Polk & Co., while Western European sales are forecast to rise even faster, from one half percent of car sales in 2008 to 5 percent in 2012.

Drivers can also offset their carbon emissions by buying carbon credits that fund green projects—reclaiming rainforest acres or building wind turbines, for example—although the effectiveness of these credits is up for debate. Evangelists like Al Gore swear by them, while critics say the money rarely goes to projects that do much good even as consumers keep up their actual energy usage. Regardless, the global market for carbon credit offsets has reached $100 billion, according to Point Carbon.

The bottom line for marketers is that, for now, consumers are becoming more eager to demonstrate conspicuous virtue than conspicuous consumption. Take the urban homesteading trend, a fine example of how some city dwellers are heeding the call for greater personal responsibility. Homesteaders are spending thousands on home composting and rainwater-collection kits, not to mention tools for organic vegetable gardening. Likewise, bicycling to work is no longer for teenagers on their way to the local Sip 'n' Serve. And better home insulation is quickly moving to the top of home-improvement wish lists.

Responding to this environmental enthusiasm, marketers of almost every product imaginable, from toilet paper and disposable diapers to gasoline and coal, have cloaked themselves in "green." In fact, "green" was the single most trademarked term in the U.S. in 2007. The result: a market awash in greenwash—green marketing claims that simply cannot be authenticated.

So how can consumers actually help the earth? Developing an ethic of conservation is one way. Reusing more and recycling just about everything is just the start. An ethic of conservation would embrace several norms, including "a sense of responsibility, a sense of stewardship, for the natural world," according to Harvard political philosopher Michael J. Sandel.

Of course, merely obsessing over recycling isn't going to solve the problem. But as consumers collect all the low-hanging fruit and get serious about caring for

the planet, even just their small patch of it, marketers are taking notice in meaningful ways—by reducing packaging, making more genuine claims, streamlining production. Western nations set the bar for affluent living—and now the Chinese are building McMansions, India is paving highways, Egypt is constructing gated communities. With millions entering the middle class each year, all that low-hanging fruit is bound to pile up.

GIVING PEOPLE WHAT THEY WANT

Consumers naturally spend less in a chilly economic climate. Could a warming world and a renewed ethic of conservation make things worse? Only for those who don't see which way the wind is blowing.

"We build what the market wants." That's what General Motors CEO Rick Wagoner said in the 2006 documentary *Addicted to Oil*, which aired on the cable network Discovery Times. Put simply, if the people want SUVs, Hummers and pickup trucks, that's what you build.

But it's not that simple. GM didn't just give the people what they wanted. It spent years lobbying against higher gasoline taxes. And it banked on a culture of environmental indifference and on stable oil prices. Consider one 2008 ad for the GMC Sierra Pickup truck that used the line "We stared fuel efficiency in the eye. Fuel efficiency blinked." Fine print touted the truck's relative fuel efficiency for its size; finer print noted it was 14 miles per gallon in the city and 20 miles on the highway.

Now that the wind has changed direction, GM's walls are tumbling down. "We, like everybody else, didn't anticipate fuel prices to go up like they did," Wagoner told *The New York Times* this year. The automaker, which has relied heavily on SUV and truck sales, is now asking the U.S. government for $30 billion in aid to keep it out of bankruptcy.

Ford Motor Company is in a better place than its American counterparts. The company, which has been restructuring since 2005, manufactures the Ford Escape hybrid and small cars like the Focus and Fiesta. Is it just a coincidence that Ford is the only big three U.S. automaker not petitioning for more aid? Meanwhile, Japanese automakers, historic producers of high-efficiency motors and hybrid innovators, are in a better place than their American counterparts.

Of course, the economy is the main culprit behind American automakers' woes. Even small cars are sitting on car lots, but the future of small autos with high fuel efficiency is looking brighter. Gas prices are down, but consumers haven't yet forgotten last summer's highs. In Europe, high gas taxes have kept demand for small cars uniformly high, though recession has tanked the car market worldwide. Buyers for the decidedly unglamorous Honda Fit, a subcompact that gets roughly 40 miles per gallon, racked up waiting lists at some U.S. dealerships.

The lesson here is that consumers will always consume—drivers will always need to replace battered cars—but priorities are shifting. And businesses that respond will come out ahead.

Wal-Mart is one of those companies. Once considered a paragon of scorched-earth retailing, the retailer has revamped its practices and its image to become a far more fuel-efficient company. The company's efforts were enumerated in a *New York Times* article headlined "Green-Light Specials, Now at Wal-Mart." When Wal-Mart orders up organic foods, fluorescent light bulbs and concentrated laundry detergents, corporations like General Mills, General Electric and Proctor & Gamble listen. "By virtue of its herculean size, Wal-Mart eventually dragged much of corporate America along with it," the *Times* said.

More important, by bringing earth-friendly items to its shelves, Wal-Mart has tapped an untapped market: lower-income earth-conscious shoppers. In 2007 alone, Wal-Mart sold more than 100 million fluorescent bulbs. And, according to the company, by using concentrated detergent, its customers will save 400 million gallons of water, 95 million pounds of plastic resin, 125 million pounds of cardboard and 520,000 gallons of diesel fuel over three years.

"As the saying goes, Wal-Mart has also done well by doing good," the *Times* noted. By democratizing environmental sustainability, it has started to refurbish its reputation and has saved millions in energy costs. After redesigning its trucks and rethinking how to load them, Wal-Mart improved its fleet's fuel efficiency by 25 percent. The company also earns $3.5 million a year by recycling loose plastic and selling it to processors.

It's difficult to measure the financial benefits of Wal-Mart's burnished reputation, but it's clear that consumers feel better about their own consumption when they buy from brands and retailers that embrace an ethic of conservation. Indeed, the ethical reasons for going green—preserving the earth for future generations, etc.—have proved to be more persuasive than doomsday scenarios, according to a University of Michigan study.

Since yesterday's personal rewards are now guilty pleasures, marketers can help assuage consumers' guilt. Virgin Airlines offers an easy way for ticket buyers to purchase carbon offsets. Vail Resorts boasts that its chairlifts and lodges are 100 percent powered by wind energy, as purchased through carbon credits.

Amazon.com not only uses recyclable packaging, it has developed a software program that determines the "right size" for a package. While this helps the company reduce waste, it also makes customers feel a little less guilty about their carbon footprint and, perhaps, will help ensure that they return to make another purchase.

Retailers and marketers have significant power to change the market for the better, by giving people what they now want.

WHAT IT MEANS

Visitors to the Wal-Mart in McKinney, Texas—the dark, slick heart of oil country—will no doubt notice the wind turbine in the parking lot and solar panels on the roof. Wal-Mart's experimental "green" store, which also employs high-efficiency lighting, waterless urinals and a bio-fuel-powered heating system, is a beacon of sustainable design in an otherwise conventional exurb. The store is also an example of how corporations, communities and governments are coming to understand just how powerful, and profitable, the Energy Race can be.

Genuinely embracing an ethic of conservation can make consumers feel better about consuming a product. While consumers have come to recognize greenwashing as a ploy, they crave the warm, fuzzy feeling they get when spending their cash in a way that feels environmentally responsible. To fill that gap, marketers must adopt and be recognized for policies that put them at the forefront of the sustainability movement. Every real effort makes progress, and consumers will notice.

Of course, there are the practical benefits of innovating and adopting green energy technology. Spending less on energy leaves more for investments and innovations. Companies like Wal-Mart know they'll be left in the dust if they don't start innovating now. Governments are waking up to the same idea. Countries like Norway and Denmark have been on board since the 1970s, as have Japanese car companies. Spain's solar industry is unrivaled. But with the United States now firmly on board, the Energy Race is destined to amp up for good.

With more countries and companies working toward clean, renewable energy solutions, our global economy might just rise from the ashes a better, more efficient place than it is now.

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