

Alternative Energy

Opportunities for growth.

By Nadine S. Bartholomew

T

homas Chen has long known the value of going green.

For years, his company, **Crystal Window & Door Systems**, one of the top 60 manufacturers of replacement and new construction window and door products in North America, has offered its customers energy management solutions. Selling options like reflective LowE

glass coatings, inert argon gas-filled dual-insulated glass assemblies, triple glass, and an array of accessories to ensure sealed system quality, helped his company

grow. But now Chen sees an even bigger opportunity.

In January of this year, Chen announced the launch of Crystal's newest subsidiary, **Helios Energy Systems**. Headquartered at its parent company's main offices in Queens, New York, the



Thomas Chen



new firm will focus on the solar generation of electric power through the use of photovoltaic (PV) technology.

"We see a very bright future for our new solar power subsidiary," Chen says. "This 'green' technology is still in the early stages of market development. However, by investing resources now into a new enterprise, we assure ourselves growth and success."

Initially, Helios will provide design, sales, and installation services to home and building owners, as well as act as a wholesale distributor of solar PV power systems. In the future, the firm plans to become a manufacturer of solar panel modules as well.

"There are many challenges to entering this field," Chen says. "[But] the potential gains from this new market are enormous and, by getting in early, we hopefully assure ourselves a maximum return."

Chen is rare. Not many minority- and woman-owned firms are working in the green energy sector—at least not yet. But with corporations and governments around the world now embracing alternative energy, that could change very, very soon.

"I am very optimistic about the opportunities for M/WBEs as the industry expands via alternative energy sources," says **Emmett Vaughn**, supplier diversity director at the nation's largest electric utility, **Exelon Corporation**. Vaughn says the growth potential in the energy

sector could rival the positive economic impact the auto industry had on supplier diversity 20 years ago. He would know; his corporation is already leading the way in alternative energy.

One of Exelon's companies, **PECO**, became Pennsylvania's first utility to voluntarily offer a wind energy product, and Exelon's renewable generation

portfolio continues to grow. Through its power purchase agreements from four wind farms in Pennsylvania and West Virginia, Exelon has become the largest marketer of wind-generated energy east of the Mississippi River. Complementing its wind agreements, Exelon owns and operates one of the largest landfill gas facilities in the country. It is an environmentally friendly facility that utilizes landfill gas to generate electricity.

Additionally, Exelon owns and operates one run-of-the-river and one pumped storage hydroelectric station. Though two separate types of facilities, the two hydroelectric stations provide much needed load leveling and base load power to the region. The hydroelectric stations, Conowingo Hydroelectric Generating Station and Muddy Run Pumped Storage Facility, consist of 19 units that provide 1,619 megawatts of reliable, environmentally friendly power generation that complements the company's fossil, renewable, and nuclear portfolios. As a member of the U.S. Environmental Protection Agency's Climate Leaders Partnership, Exelon is also developing a corporate-wide inventory of the six major greenhouse gases. As a participant in the U.S. Department of Energy's 1605b Program, Exelon Corporation reported 33 greenhouse gas reduction initiatives in 2002, totaling an avoidance of 7.1 million tons of CO₂-equivalent emissions.

Projects like these are good news for M/WBEs, as suppliers are needed to support industry expansion.

"We want to do business with suppliers who are like-minded and share our vision regarding the environment," says **Sandra Hirsch**, Exelon's manager of strategic initiatives for supply. "Exelon values suppliers who understand the increasing importance of environmental performance as part of an overall business strategy and in their own operations as a means to reduce costs."

According to Vaughn, "There is an abundance of well-scaled minority businesses in similar industries that should seek opportunities where they can make a shift, as our industry redefines itself." For example, Exelon is currently us-

ing a minority-owned environmental consultant, **G&C Environmental** of Philadelphia, to audit 15 energy plants for opportunities to reduce the fossil fuel impact on the environment. Vaughn continues, "Other examples might be information technology firms researching and understanding the platforms in which alternative energy sources will move from generation to grid access to distribution. Human capital firms, whether they are in staff augmentation areas or simple recruitment, should formulate strategies for amassing a talent pool that is pedigreed or qualified to staff companies in this burgeoning industry. Developing strategic alliances with large fuel, manufacturing, and support service providers to the nuclear/alternative energy industry would also be an advisable direction for minority businesses, as this is likely to be an emerging market for second-tier relationships."

There are some not so obvious opportunities as well. For example, the investment opportunity is huge.

"I am particularly hopeful that the minority investment community gets enthused about acquisitions and equity investments in this industry," Vaughn says. "Minority businesses should seek to enter this growth frontier at ownership levels. There are also [minority and women] executives in the industry primed to leave corporations and lead these potential new energy companies. These opportunities absolutely should be on their radar."

A New Commitment

Alternative energy is now squarely on the nation's radar. In his inaugural address, **President Barack Obama** declared that as a nation the United States "will harness the sun and the winds and the soil to fuel our cars and run our factories." Just weeks later, he put billions of dollars of "green spending" into his stimulus plan.

"To finally spark the creation of a clean energy economy, we will double the production of alternative energy in the next three years," President Obama said about his plan. "We will modernize more than 75 percent of federal build-



Emmett Vaughn

ings and improve the energy efficiency of two million American homes, saving consumers and taxpayers billions on our energy bills. In the process, we will put Americans to work in new jobs that pay well and can't be outsourced—jobs building solar panels and wind turbines; constructing fuel-efficient cars and buildings; and developing the new energy technologies that will lead to even more jobs, more savings, and a cleaner, safer planet in the bargain.”

Around the world there is new interest in the prospect of producing clean, sustainable power from renewable energy sources. On a global scale, at least 66 countries have already developed national targets for renewable energy, including 27 EU countries that have set a baseline target of 20 percent by 2020. Additionally, several developing countries, like China, India, and Brazil, have set ambitious targets. While neither the United States nor Canada has a national target, 29 U.S. states and nine Canadian provinces have their own targets.

Areas of Opportunity

Renewable energy, typically used interchangeably with the term “alternative energy,” is generated from resources that are unlimited, rapidly replenished, or naturally renewable. There are four areas—water, wind, sun, and biomass—that are expected to see incredible growth in the coming years.

Water

Hydroelectric power systems use water to turn turbines and generate electricity. Many hydroelectric power plants use dams to store water. The water is released from the dam and directed through a turbine causing it to spin. This in turn powers a generator, which produces electricity. A small or micro-hydroelectric power system can produce enough electricity for a home, farm, or ranch. This type of system can be very reliable, providing electricity all year round. An added benefit is that any surplus electricity produced can usually be sold back to the grid. Commercial systems can produce many megawatts of electricity and are part of the govern-

ment's plan for increased energy production through renewable sources.

Water is the most common source of renewable energy in the United States today and accounts for about 7 percent of the electricity used by the nation. The U.S. Department of Energy's (DoE) Wind and Hydropower Technologies Program had a \$10 million budget for waterpower research in 2008, and the program is currently operating under a continuing resolution at the same funding level for fiscal year 2009.

Wind

Windmills, very much like those used to grind grains, pump water, and run sawmills for hundreds of years, now use sails or blades to convert wind energy into kinetic (movement) energy and then into electrical energy for both large-scale commercial utilities and smaller applications. Although wind power currently provides only about 1 percent of U.S. electricity needs, it is growing more rapidly than any other energy source.

According to the American Wind Energy Association (AWEA), the wind industry invested more than \$15 billion in domestic wind farm construction in 2008. In May 2008, the DoE reported that wind could provide 20 percent of U.S. electricity by 2030, supporting 500,000 jobs, reducing greenhouse gas emissions by the equivalent of removing 140 million vehicles from the road, and saving 4 trillion gallons of water (an amount equivalent to a 40-year supply for the city of Phoenix).

Sun

Solar technologies use the sun's energy to provide heat, light, hot water, electricity, and even cooling. Different types of solar collectors are used to meet different energy needs. Passive solar building designs capture the sun's heat to provide space heating and light. Photovoltaic (PV) cells convert sunlight directly into electricity. Solar power systems focus sunlight with mirrors to create a high-intensity heat source, which then produces steam or mechanical power to run a generator that

creates electricity. Flat plate collectors absorb the sun's heat directly into water or other fluids to provide hot water or space heating. And solar process heating and cooling systems use specialized solar collectors and chemical processes to meet large-scale hot water and heating and cooling needs. Solar panels convert sunlight into electrical current using thin layers of semiconductor material, usually silicon.

In 2007, the DoE's Solar America initiative awarded \$340 million in cost-shared industry-led research and development projects for Photovoltaic systems development and manufacturing. Despite sunlight's significant potential for supplying energy, solar power provides less than 1 percent of U.S. energy needs. This percentage, however, is expected to increase with the development of new and more efficient solar technologies.

Biomass

Biomass, the organic non-fossil material derived from plant and animal sources, can potentially be produced almost anywhere in the United States. Wood has been used for energy longer than any other biomass source and today is still the largest biomass energy resource. The largest source of energy from wood is pulping liquor or “black liquor,” a waste product from processes of the pulp, paper, and paperboard industry. Biomass energy can also be derived from waste and from alcohol fuels. Waste energy is the second-largest source of biomass energy. The main contributors of waste energy are municipal solid waste, manufacturing waste, and landfill gas.

In a domestic setting, common biomass systems include woodchip burners for household heating and hot water or bio-diesel for use in vehicles. Commercial biomass projects generate electricity by collecting methane gas from landfills. When a landfill is full, it is covered and the garbage inside begins to decompose, producing methane gas, which is then captured and used to generate electricity. Methane gas burns cleaner than fossil fuels, and biomass technology is carbon

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neutral, as the carbon dioxide released from burning the fuel was originally captured from the atmosphere during the life cycle of the plant or animal.

In December 2008, the DoE issued a Funding Opportunity Announcement (FOA) for up to \$200 million over six years (FY 2009—FY 2014), to support the development of pilot and demonstration-scale bio-refineries using feedstock such as algae, and the production of advanced and innovative biofuels such as bio-butanol and “green” gasoline.

Forward-thinking policymakers and business leaders who are working to help the renewable energy markets flourish recognize that clean energy means economic development, jobs, stable electric prices, and a cleaner environment. To create viable opportunities for renewable energy, the policy and business framework must keep pace with the dynamic changes underway within the overall energy sector, and must reflect

America’s new social, economic, and environmental priorities.

President Obama’s plan to jump-start the economy and create new jobs includes funding for a smart electricity grid, renewable energy tax cuts, a tax credit for research on energy efficiency and clean energy, a multiyear extension of the green-energy production tax credit, and funding to help weatherize modest-income homes. Opportunities to promote energy independence and provide global warming solutions abound, as more and more Americans adopt renewable generation, such as roof-top solar, bio-fuels, and wind, while making investments in energy-efficiency technologies, such as in-ground geothermal heating and cooling systems for homes and offices. Though relatively small at present, the scale and growing pace of the new “energy economy” creates new opportunities for businesses to grow revenues and enhance their brand. Minority- and woman-owned

business enterprises interested in working with the energy sector should consider jumping aboard this trend as it transforms how the world does business. ♦

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