

[Note: Delaware Governor Jack Markell delivered the following speech in Newark, Delaware, on August 20, 2008]

## A Climate Prosperity Strategy for Delaware

*Transforming Delaware's economy to ensure that Delawareans are participants in the proven prosperity that comes from addressing pressing environmental problems*

Green symbolizes money. Green symbolizes a thriving environment. What I propose today is a “Green-Green Policy” for Delaware.

Historically, our nation has taken a cost-benefit approach to environmental policy and planning. We ask “how much economic pain are we willing to endure to pay for new smokestack scrubbers?” To preserve a pristine area from development? To clean up past environmental sins? We submit every piece of environmental legislation to a rigorous cost-benefit analysis. This information is important, of course, but . . . What if we could find benefit-benefit solutions? What if we could create environmental programs that, rather than burdening Delaware’s economy, helped to grow and sustain it?

We can.

In my campaign for governor I’ve already offered detailed initiatives that would create a modern, advanced, technological economy and a 21<sup>st</sup>-century environmental masterplan for Delaware. Here I propose ways to go even further, to show how the goals of economic expansion and environmental stewardship can go hand-in-hand.

What follows is a strategy that delivers prosperity and quality of life, by directly placing sustainability at the center of our economic development thinking and action. Imagine a sustainable business climate *and* a sustainable global climate. Think of it as a “climate prosperity” strategy, that when implemented under my leadership will help Delawareans to become more prosperous by using less. To earn more green by getting greener.

It has long been thought that these interests conflict – that protecting the environment will be too costly and disruptive to economic growth. We now know that just the opposite is true. In *The Economics of Climate Change*, Sir Nicholas Stern shows that failure to act will be far more costly and detrimental to the economy over the long term, and that the costs of acting soon are relatively manageable, especially compared with the costs of major adaptation once climate change becomes more severe in future decades.<sup>1</sup>

We have increasing evidence that the environment and the economy are allies, not enemies. Immediate action to protect against the harmful effects of global warming can enhance job growth, incomes, productivity, competitiveness, efficiency, and cost-effectiveness.<sup>2</sup>

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<sup>1</sup> Global Urban Development Forum white paper on Climate Prosperity, p. 1.

<sup>2</sup> Ibid.

The best evidence is right here in our state. When Governor Russell Peterson signed the Coastal Zone Act in 1971, some special interests argued that it was an anti-business decision. I believe exactly the opposite. By protecting our coastal zone from development and ensuring the beauty of the area for posterity, Governor Peterson made it easier for Delaware to attract businesses and talented workers who value Delaware's great outdoors.

Also right here in our backyard is DuPont, which is recognized as a leader in increasing competitiveness, efficiency and cost-effectiveness by taking steps to protect against global warming. According to several published analyses, DuPont saved \$3 billion while also reducing its greenhouse gas (GHG) emissions 72% over a decade.<sup>3</sup> <sup>4</sup> In the mid-1990s, it adopted an aggressive corporate energy policy focused on maximizing energy efficiency; lowering the environmental impact of energy consumption; and renewing the company's power infrastructure. In order to achieve this, DuPont set up energy teams across its business units and facilities worldwide. Each month, the teams monitored electricity usage for every building. This allowed them to see how improvements could be made in the areas of efficient lighting, heating, cooling, compressed air, and energy cogeneration. DuPont's investment in energy efficiency allowed the company to hold energy use flat between 1990 and 2000 while increasing production 35%.<sup>5</sup>

DuPont has not only protected the environment by making its operations more efficient. It is also recognized as a leader in determining how to take existing products and processes and put them in service of environmental protection, and in developing new products and processes that will open up new "green" markets to the company. For example, by exploring the climate benefits of its products, it found that Tyvek, a protective material used in construction, provides greater insulation and allows houses to be built without roof ventilation systems. The use of Tyvek lowers heating costs and translates to an energy savings of about 10% per month.<sup>6</sup>

If we are smart, if we learn from these leaders and place environmental protection at the center of our economic development, we can usher in a new era of economic prosperity for Delaware

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<sup>3</sup> Northrop, Michael (2008). Reducing GHG Emissions: The Myth of Economic Harm and Corporate Experience So Far; Senge, Peter (2008). The Necessary Revolution.

<sup>4</sup> Senge, Peter (2008). The Necessary Revolution, p. 6.

<sup>5</sup> [http://www.theclimategroup.org/reducing\\_emissions/case\\_study/dupont/](http://www.theclimategroup.org/reducing_emissions/case_study/dupont/)

Amongst DuPont's climate change initiatives, energy efficiency opportunities have provided the greatest cost savings. However, despite this, the company has found that energy efficiency projects are not always a natural choice when allocating available capital within the firm. Internal rates of return (IRR) on efficiency measures tend to be lower than for many mainstream manufacturing projects, and investment in emissions reduction has been viewed by some as less 'strategic'. To lower the barriers to implementation, DuPont plans to identify projects with IRRs greater than 20% by extending responsibility for the energy saving program to the Asset Productivity Leadership Team. With DuPont's aggressive business growth targets over the next decade, it will be a challenge to maintain flat energy use. "To meet the energy efficiency goal," says Ed Mongan, Director of Energy and Environment, "the key will be to have strategies, performance commitments and leadership at the business unit and site level."

<sup>6</sup> [http://www.theclimategroup.org/reducing\\_emissions/case\\_study/dupont/](http://www.theclimategroup.org/reducing_emissions/case_study/dupont/)

residents and businesses. Just as DuPont worked with its business units and facilities to identify ways to use energy more efficiently and to reap the savings of efficiency, Delaware can help its businesses generate “green savings” from energy efficiency. Just as DuPont worked with its business units to identify new “green opportunities,” Delaware can – and will under my leadership—work with its businesses to connect them to green industry markets and supply chains. Finally, just as Governor Peterson presciently protected Delaware’s quality of life and enhanced the state’s attractiveness as a place to work and live, Delaware can again take the steps to attract “green talent”—that is, the business leaders, entrepreneurs and highly-skilled workers who are the drivers of business success and regional economic progress today.

### **The Context: Green Industries v. Transforming Delaware’s Economy**

In response to rising oil and gasoline prices, the need for energy security, and global climate change, many have emphasized the need for new “green technologies” and the economic benefits of new “green industries.” While we must look to build green industries in Delaware, we must look beyond them to the economic prosperity and growth potential in *all* of our industry sectors, when *all* of our businesses are encouraged to place sustainability at the center of their strategic visioning.

From an economic and workforce development standpoint, this shift in focus is significant. New discoveries and new demand for green technologies are fueling the expansion of business activities across the entire economy to develop in greener ways, offer greener products, and provide services in helping businesses become more resource efficient. The economy-wide application of these technologies has potential to reinvigorate industries that were either not growing or even declining. For instance, the new interest in green building and solar installation has created new demand in construction activities in an industry that is experiencing a slow-down. The application of solar technologies across a growing spectrum of consumer products and apparel is creating new niches in these markets.<sup>7</sup>

The great potential for prosperity lies not only in the creation of new green products but also in the supply chains of these products. For example, according to the American Wind Energy Association, wind turbines are made from nearly 8,000 parts. These include bolts, lubricants, copper wiring, fiberglass housing, ball bearings, printed circuits, motors and generators, other electronic equipment and measuring devices.<sup>8</sup> Another example is the increasing interest in new systems to recover and use waste heat. The supply chain for these recovery systems includes boiler and piping manufacturers.<sup>9</sup> Consider as well the energy efficiency sector: lighting, ground source heat pumps, smart appliances, geothermal, insulation, and retrofitting. The supply chain for this sector includes raw material providers such as fiberglass and paper, plastic films, pipes, pumps, motors, refrigerant liquids, circuit boards, Styrofoam, molded plastic, well-drilling, and compressors.

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<sup>7</sup> Collaborative Economics, “Clean Technology and the Green Economy: Growing Products, Services, Businesses, and Jobs in California’s Value Network,” a presentation to the California Economic Strategy Panel, March 2008.

<sup>8</sup> Environmental Defense Fund, “Solving Climate Change, Seizing Economic Opportunity,” March 2008.

<sup>9</sup> Ibid.

Delaware businesses that fall within these supply chains must be connected to these industries. The potential for business growth and job creation is vast. The Environmental Defense Fund estimates that there are 2 million potential manufacturing jobs in the supply chains for renewable energy. A recent study by the American Council for an Energy Efficient Economy reports that by adopting energy efficient strategies, Florida will save \$28 billion and create more than 14,000 jobs by 2023.

Under my leadership as Governor, Delaware will adopt energy efficient measures that will generate jobs, cost savings, and CO<sub>2</sub> reduction. But we will also do much more for our businesses, and ultimately for the environment.

### **State and Regional Experiences**

Other states and regions have had tremendous economic success with this strategy. Early on, California policymakers identified the potential of new technologies, combined with innovative public policy and strategic investment, to stimulate the growth of new markets for environmentally sound products and services. But they also saw the potential of widening the application of new technologies across the entire economy and as a way to reinvigorate slowing markets.

Acting on its forward thinking, California achieved astounding results, proving that a state can grow its economy while increasing energy efficiency and reducing its greenhouse gas emissions per capita.<sup>10</sup> Today California's per capita Gross Domestic Product (GDP) is one of the highest in the nation, and its per capita greenhouse gas emissions are among the lowest.<sup>11</sup> Between 2000 and 2006, California's per capita GDP grew 2%, becoming the tenth highest in the nation. This growth occurred as California mandated the first ever statewide cap on global warming pollution – a requirement that the state reduce its greenhouse gas emissions to 1990 levels by 2020. In response to the mandate (as well as to rising oil prices, shifting attitudes and behaviors, and technological innovations) per capita emissions levels in California today are slightly lower than they were 15 years ago, dropping from 12.2 to 11 metric tons of CO<sub>2</sub> equivalent. The average annual growth of GHG emissions between 1990 and 2004 was only 1%—even while the state's population grew by 2%. California expanded energy storage capacity, enhanced energy efficiency, generated energy from renewable sources, conserved natural resources, and limited society's negative impact on the environment.

But California's green economy is not about a handful of new industries struggling in underdeveloped markets. Instead, it is about a transformation of an entire economy. First, the energy reductions have translated into real savings for California consumers. The California Energy Commission estimates that building and appliance standards alone have saved residents and businesses \$56 billion through 2003 and will save another \$23 billion by 2013.<sup>12</sup> According to Next 10, a nonpartisan environmental advocacy group based in California, projected savings resulting from new

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<sup>10</sup> Collaborative Economics, "Clean Technology and the Green Economy: Growing Products, Services, Businesses, and Jobs in California's Value Network," a presentation to the California Economic Strategy Panel, March 2008.

<sup>11</sup> Next 10 (2008). "California Green Innovation Index: 2008 Inaugural Issue." Palo Alto, CA

<sup>12</sup> Susan Brown. 2005. Global Climate Change. In support of the 2005 Integrated Energy Policy Report. Staff Paper. California Energy Commission.

appliance efficiency standards adopted in 2004 are expected to reduce consumer utility bills by \$3.3 billion during the first 15 years they are in effect.<sup>13</sup> These billions are available for investment in other areas, generating economic benefits for California.<sup>14</sup>

Beyond the consumer benefits, California is escalating its share of patents in solar energy, wind and battery technology. Green establishments and jobs are increasing, especially in energy generation and energy efficiency.<sup>15</sup> California is looking to its next wave of green innovation, focusing growing dollars and talent on clean energy. Official state and private forecasts predict a net positive impact on job creation and economic growth, though some industries may suffer while others gain.<sup>16</sup>

Metropolitan Portland, Oregon, also has experienced significant economic benefit by placing sustainability at the center of its policy—but in very different ways. Portland benefited by investing in mass transit and enacting progressive environmental regulations, including the creation of an urban growth boundary.

How did Portland grow its economy while limiting its physical growth? By cutting down on the need to drive. Since 1996 Portland reduced vehicle miles traveled (VMT) per capita by more than 10 percent, through compact development and shorter trips, and through land use policies that encourage denser neighborhoods and greater accessibility to jobs and shopping. VMT reduction put \$1 billion a year back into the pockets of Portlanders—and back into the local economy.

Here's the math: Between 1996 and 2007, 2 million Portlanders reduced their driving on average 4 miles per day. That's 8 million miles a day—a whopping 2.9 billion miles per year. A conservative estimate of the cost of driving is 40 cents per mile. All told, Portland drivers saved 1.1 billion dollars a year.<sup>17</sup>

Here's how that translates into economic growth: Much of the money that drivers spend on transportation immediately leaves states that do not make gasoline or cars. Money not spent on transportation gets spent on sectors of the economy that have a much larger multiplier effect. “According to IRS data, about 73 percent of the retail price of gas, back when it was \$2 a gallon, by the way, and 86% of the retail price of cars immediately leaves the local economy. The \$1.1 billion Portlanders don't spend on car travel translates into \$800 million that is not leaving the local region. Because the money gets re-spent in other sectors of the economy, it stimulates local businesses rather than rewarding Exxon or Toyota.”<sup>18</sup>

Additionally, by dramatically improving the region's quality of life and sustainable lifestyle, metropolitan Portland has attracted and retained a highly talented and skilled workforce, which has increased business investment and entrepreneurial growth. According to economist Joe Cortright, the

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<sup>13</sup> Next 10, p. 23

<sup>14</sup> Ibid, p. 5.

<sup>15</sup> Ibid, p. 6.

<sup>16</sup> Ibid, p. 15.

<sup>17</sup> Cortright, J. (2007). Portland's Green Dividend, A White Paper from CEOs for Cities, p. 2

<sup>18</sup> Ibid.

ability to attract and retain talented 25-to-34-year-old workers is a critical factor in a city's ability to succeed in the knowledge economy. They drive business success and regional economic progress. Portland today has proportionately more of this demographic, compared with the average metropolitan area. This represents an increase of 12 percent since 1996 in Portland's population of 25 – 34 year olds, in sharp contrast to the 8% national average for metropolitan areas. Attracting younger workers will be critical for Delaware's future. Delaware's population is expected to age significantly over the next 20 years, reducing the percentage of the population in the workforce substantially.

Other areas of the country are seeing the economic benefits of energy efficiency. Austin, Texas, has proposed drastic cuts in its greenhouse gas emissions and, through its close work with municipal power company Austin Energy, is an active advocate of sustainable energy. Austin boasts the country's first city-level green-building program and has been able to offset 600 megawatts of power through energy efficiency. And the city is pushing for more. It has aggressive goals in carbon emissions reductions through biofuels, clean energy, plug-in hybrids and green buildings.

In Jacksonville, Florida, more than 500 Energy Star homes have been built in the past two years, a trend that has lowered homeowners' electric bills and helped home builders. The increased demand for Energy Star homes gives a big competitive advantage to companies who have the ability to build homes with tight construction, improved insulation, high-performance windows, extra-sealed air conditioning ducts, and energy-saving heating and cooling equipment. Local companies say they face fewer warranty claims as well.<sup>19</sup>

What each of these stories tell us is that when we use less, conserve and reuse more, and develop unique strategies to protect the environment, we generate green savings and green profits, creating green opportunities, and recruiting green talent.

### **Climate Prosperity – A Win-Win Option for Delaware's Economy that Produces Significant Environmental Benefits**

Greening Delaware's economy is a matter of finding ways to put Delaware's businesses – small and large, old and new – in the center of the sustainable economy. What follows are strategies for significantly enhancing prospects for prosperity through increased jobs, incomes, productivity, competitiveness, efficiency and cost-effectiveness, by protecting the environment.

#### **Green Savings Strategies for Delaware's Businesses and Families**

*Initiatives to reduce CO<sub>2</sub> and other greenhouse gases generate green savings because they save people money on energy and electricity expenses.*

Large businesses, small businesses, local governments, and residences in Delaware have begun to take steps to reduce CO<sub>2</sub> and are reaping the savings. As I wrote above, DuPont has saved \$2 billion by adopting an aggressive corporate energy policy. Other businesses have, on a more limited scale, invested in energy efficiency and renewable energy and reaped big savings.

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<sup>19</sup> Builders, Buyers Seeing the Merits of Conserving, The Florida Times-Union, June 12, 2008.

Delaware local governments have also begun to realize that being good fiscal stewards is compatible with being good environmental stewards. New Castle County, for example, has saved taxpayer dollars over the past 3 years, as it has implemented recycling strategies, invested in energy efficiency upgrades to buildings, and implemented a host of other energy saving measures. The County recycled in 2007 242.25 tons of paper, 103,900 aluminum cans, and 97,208 plastic bottles. It also recycled 1,000 toner cartridges.

The county took other seemingly simple measures like using the two-sided printing default on computers. This has cut the purchasing of paper by 26%. Putting the PC “sleep” monitor function in force on county owned systems has also reduced energy consumption when not in use. Industry data indicates savings to be between \$10k and \$20k annually, and prevents the release of 300,000 pounds of CO<sub>2</sub> emissions in New Castle County. The county also has upgraded some of its facilities, most notably the Louis Redding City/County Building in Wilmington. The retrofit resulted in emission reductions of 5,626,721 pounds of CO<sub>2</sub>.<sup>20</sup>

Delaware homeowners are also now taking steps to get greener and are seeing the results. Steve and Debbie Hegedus installed solar panel on their Newark house last year. It is providing two thirds of their electricity, saving them hundreds of dollars per year. The Hegedus’s system cost \$20,000, a cost well out of the reach of many homeowners. Families do not have to make such steep investments, however, to reap green savings. The Center for Energy and Environmental Policy at the University of Delaware recently completed a study of residences in Delaware that had completed roughly \$2,000 of energy efficiency work in their homes. The study showed that this investment resulted in an overall savings of 21% from their heating and cooling bills. This study is consistent with the industry’s estimate that energy efficiency retrofits generate savings of 20 – 25%.<sup>21</sup>

Every place can save money through increasing conservation, efficiency and innovation by using less and reusing more. Here’s my strategy for Delawareans to reap their own “green savings” – putting dollars in your pockets while helping to protect the climate and the environment.

### **Strategy # 1: A Modernization Service for Delaware’s Businesses and Homes**

We have to understand that helping Delaware’s businesses and families to modernize their facilities and homes can no longer be seen as “nice to do” programs but that it is a “must do” initiative in order to see economic growth that benefits everyone. It is estimated by local industry experts that over 100,000 houses in Delaware need to be modernized.<sup>22</sup> While there is not an estimate regarding businesses, we do know that there is a pressing need for businesses to lower costs, in order for our economy to be more competitive.

As Governor, I will leverage the Sustainable Energy Utility and other initiatives to turn small state-funded programs into a massive energy efficiency modernization of this state’s households and businesses. The **Delaware Modernization Service** will provide a comprehensive package of energy

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<sup>20</sup> Purchasing Office, New Castle County.

<sup>21</sup> Ed Mensch, Energy Services Group. Personal communication.

<sup>22</sup> Ed Mensch, Energy Services group. Personal communication.

efficiency technical assistance and on-going support services to Delaware's businesses and households. The Service will:

- Promote a standardized energy audit
- Train energy auditors
- Facilitate community-wide energy efficiency audits in homes and businesses
- Provide advice on what to do and how to do it
- Provide grants for retrofits (this could also be in the form of low-interest loans)
- Give information on financing and support programs
- Act as a clearinghouse of information on suppliers and contractors who can do the work
- Provide on-going monitoring and technical assistance.

This program will fund low-cost upgrades, like insulation or installing energy efficient windows. If all 100,000 homes are upgraded, Delaware homeowners could save \$38 million annually, according to an analysis by University of Delaware professor Willett Kempton. And if one third of commercial buildings are modernized, their savings would be another \$31 million annually. This program would return \$69 million a year to Delaware's local economy while reducing carbon dioxide emissions that cause climate change.

Funding will largely come from the Sustainable Energy Utility, which will receive a significant portion of the state's proceeds from the Regional Greenhouse Gas Initiative auctions. The state will also seek out other sources, such as federal funding. The Delaware Modernization Service will be a winner for every business and every household that utilizes it, a winner for our economy, and a winner as we dramatically reduce energy use, GHG and other global warming emissions.

### **Strategy #2: Global Green Supply Chain Service for Delaware Businesses**

I want to help Delaware businesses see their potential opportunities in the global green economy, because it is good for all of us and it is good for the environment. As Governor, I will facilitate a partnership between the state, our businesses, and our labor community to conduct a *thorough analysis of the regional, national and global renewable energy and energy efficiency supply chains, and of the potential for Delaware's businesses and workers to be a part of them.* We will identify how our businesses can immediately participate in the sustainable economy, how they can engage in more efficient production processes, and how they may develop products and services that are more green, to reach local and global markets.

With that analysis, Delaware will launch **Global Green Supply Chain Service for Delaware Businesses**, which will connect Delaware's businesses with the sustainable economy through strategic visioning and technical assistance. In doing this, we will be the first state in the United States, getting us out ahead of others to provide real advantages and real benefits to our businesses, and helping them to take advantage of the growing global markets in the sustainable economy.

The **Global Green Supply Chain Service** that I propose will be a research, outreach, and technical assistance initiative that will work directly with Delaware's businesses to assist them in understanding the green markets and green supply chains for their products, and how they may develop

a new product to tap into them. The Service will provide world-class service to Delaware's businesses – retail, wholesale, web-based, home-based – across the state.

For our manufacturers, we can do this by partnering with the Delaware Manufacturing Extension Partnership (DEMEP), to extend their services to include the assistance that Delaware's manufacturers need to be a part of the sustainable economy. DEMEP is a partnership created among the U.S. Department of Commerce, Delaware Technical and Community College, the State Economic Development Office and the Delaware State Chamber of Commerce to serve the competitive needs of smaller manufacturers in Delaware. Its goal is to keep Delaware manufacturers competitive by providing professional hands-on assistance and expert consultation. Currently its core services involve helping small to medium sized manufacturers to identify, transfer and implement best practices and technology in order to operate more efficiently and effectively. As Governor, I will provide the leadership and resources to help our manufacturers shift their lens to see now only what they do now, but what they can do in the global green economy. The Service would work specifically with Delaware businesses to connect them to green markets, by providing information to local businesses, connecting them with potential buyers of their products and services, and providing the necessary services that will enable them to be participants.

### **Attracting and Cultivating “Green Talent”**

*By getting much greener, Delaware can be a magnet for young, dynamic, highly skilled workers who are looking for a challenge and a high quality of life.*

I have often stated that we need to work more closely with our academic institutions to improve our economy. That imperative also applies to the development of skilled workers we will need to be a leader in the global green marketplace. Indeed, US universities are now competing to be more green in order to attract the most-talented students. Delaware must use the same strategy as a magnet for new high-skilled workers.

### **Strategy #3: Fostering Eco-Knowledge Clusters**

Throughout my campaign, I have warned against the state picking one or two industries as Delaware's economic future and pouring resources into those industries. I still think that is the wrong approach. The state does have a solemn responsibility to do everything it can to protect its environment, and that includes encouraging environmentally innovative businesses to locate in Delaware. Attracting these businesses is just as much about preserving the environment as it is economic development, if not more so.

#### **Electric Vehicle Conversion Cluster, Newark**

Record gasoline prices have stoked the demand for electric vehicles not only domestically but also abroad. This presents a golden entrepreneurial opportunity, if we move quickly. For example, Denmark and Israel have had import taxes as high as 200% on gasoline vehicles but little or no import

taxes on electric vehicles. With major US automakers not currently in the electric vehicle (EV) business, US and export markets are ripe for small, local auto producers. Delaware's existing knowledge base in electric vehicle conversion and its location on the Eastern seaboard puts us in a prime position to serve this new global green market.

Many of these areas of expertise are already present here in Delaware – at the University of Delaware's College of Marine and Earth Studies, the Mechanical Engineering and Computer and Information Science Departments, and the Alfred Lerner College of Business, and at private companies like DuPont, Delmarva Power, and AutoPort. Fostering a knowledge cluster in Delaware can attract new green talent to our economy. As the industry develops, every business in Delaware that manufactures and distributes these parts gets greener and gets richer.

I propose a research and development program to spur the creation of an Electric Vehicle Conversion Cluster. To generate the manufacturing of electric vehicle conversions in Delaware, I propose that Delaware facilitate an initial order of vehicles to be manufactured and converted here. Delaware has the industrial and intellectual capacity to do this. Taking this first step will make the electric vehicle conversion industry real, and put us on the road toward building a larger manufacturing enterprise at one of our auto plants.

### **Marine Energy Cluster, Lewes**

Southern Delaware, with its beautiful aquatic habitats, is a wonderful laboratory for environmental R&D that can be nurtured to attract new green talent. Within a few years, an elegant symbol of Delaware's commitment to carbon reduction will be visible on the horizon off Rehoboth Beach, the future home of what may be the nation's first offshore wind farm. The location is excellent not just because of the winds that blow, but because of the growing eco-knowledge cluster up the road in Lewes. Appropriately, "The First Town in the First State" is the site of cutting-edge R&D in the area of marine energy.

The Lewes campus of the University of Delaware houses the College of Marine and Earth Studies, which carries out research on wind turbines in the coastal environment and in the new emerging field of marine energy. The University's R&D talent and expert testimony were critical in helping to win approval this year of the \$1.6 billion offshore wind farm, with all the associated jobs and spin-off companies. We must support and expand the specialized knowledge base that is necessary to make Delaware a hub of expertise in this area.

The creation of a marine energy cluster based in Lewes would foster collaboration in these areas of expertise and attract new talent where it is currently lacking. A marine energy industry in southern Delaware will help businesses as diverse as boat builders and auto industry supply manufacturers to diversify their markets and reap green prosperity. Another "green-green" win.

To make Delaware a worldwide leader in marine energy, I propose the following first steps: (1) Create a small state-funded matching program for corporate and federal grants for marine energy and wind turbine research. (2) Make a specific plan for wind and marine energy generation, with key benchmarks and guarantees to attract marine energy manufacturing to the state.

Today's offshore wind turbines are all manufactured in Europe. But Delaware can change that. Making wind turbines is very much like making automobiles—something we know a lot about here. Our state has the skilled labor pool, the industrial sites, the shipping capabilities, and an excellent location to support this enterprise. To justify building a wind turbine manufacturing plant, though, a company needs about 6 or 7 years' worth of orders. Can we offer that? I believe we can. With New Jersey, Rhode Island, and other seacoast states following Delaware's lead in building offshore wind farms, the potential for future manufacturing business is substantial. Therefore I intend, as Governor, to work with industry experts in crafting an offer to manufacturers that will guarantee a minimum of 6 years' worth of orders for turbines and blades. This powerful incentive would spur manufacturing, bring prosperity to those within the supply chain, and make Delaware a leader in marine energy.

#### **Strategy #4 – Delaware Green Talent Initiative**

Developing Delaware's green talent goes beyond attracting research and development professionals. I further propose that we partner with Delaware Tech, vocational-technical schools, and high schools to develop a green workforce for Delaware. **Delaware's Green Talent Initiative**, included within my proposed Delaware Modernization Service, will ensure that Delawareans are educated and trained to modernize Delaware's commercial, industrial and residential buildings—and that they are trained to design and manufacture specialized green technologies. The **Delaware Green Talent Initiative** also ensures that new workforce entrants as well as those who are changing careers receive job counseling, placement help, and ongoing assistance.<sup>24</sup>

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<sup>24</sup> Element is working with DelTech and the state to develop "Energy House," a comprehensive training program