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THE BUSINESS OF ENVIRONMENTAL TECHNOLOGY

HEARING

BEFORE THE

COMMITTEE ON SMALL BUSINESS AND ENTREPRENEURSHIP

UNITED STATES SENATE

ONE HUNDRED SEVENTH CONGRESS

FIRST SESSION

AUGUST 1, 2001

Printed for the Committee on Small Business and Entrepreneurship

Available via the World Wide Web: http://www.access.gpo.gov/congress/senate

U.S. GOVERNMENT PRINTING OFFICE

78–870 PDF WASHINGTON : 2002

For sale by the Superintendent of Documents, U.S. Government Printing Office
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THE BUSINESS OF ENVIRONMENTAL TECHNOLOGY

WEDNESDAY, AUGUST 1, 2001

UNITED STATES SENATE,
COMMITTEE ON SMALL BUSINESS AND ENTREPRENEURSHIP,
Washington, D.C.

The Committee met, pursuant to notice, at 9 a.m., in room 428-A, Russell Senate Office Building, The Honorable John F. Kerry (Chairman of the Committee) presiding.

Present: Senators Kerry, Bond, Edwards, and Snowe.

STATEMENT OF THE HONORABLE JOHN F. KERRY, A UNITED STATES SENATOR FROM MASSACHUSETTS

Chairman KERRY. The hearing will come to order. Thank you all very much. I appreciate everybody being here and I look forward very much to this hearing and I apologize to the witnesses who were prepared to come previously and who on short order switched their schedules. Unfortunately, the Senate is not always the most orderly process and we live with these changes ourselves and I apologize and I am very, very grateful to all of you for being able to switch your schedules and come in today. Thank you for doing that.

I personally am very excited about this hearing. It is going to have to be conducted under some relatively tight constraints because I have to be at a markup for the State Department authorization bill in the Foreign Relations Committee where I have personal pending business and that will start at 10:30, so I am going to have to excuse myself at that time.

But the reason I am excited about this hearing, and I think it is a very important one, is that we are embroiled in a longstanding debate in this country about the environment. Historically, many politicians have been prepared too easily and too quickly to pit good public policy, good environmental policy, against the economy, against common sense economic choices.

The fact is that there are literally thousands of extraordinarily successful small businesses in this country that are growing into big businesses, in many cases that have proven again and again that this is a phony conflict, that this is a tension that doesn't have to exist if we are smart about it, and sensitive, and we create good public policy. The fact is that small business can thrive. Big businesses can save tens of thousands, hundreds of thousands, and even millions of dollars by adopting good policies and we can do well economically even as we do good for the country.

So I thank the Administration and all of our witnesses for coming here today to focus on the important connection between small business, job creation, and environmental protection. Over the past 30 years, we have taken some very significant steps in the country to safeguard the environment. We have enacted the National Environmental Policy Act, the Clean Air Act, the Clean Water Act, the Endangered Species Act, the Safe Drinking Water Act, Superfund, and other principal environmental protections.

Now, I will acknowledge, and sometimes some of my friends in the environment don't like this, but I will acknowledge that sometimes, as in any bureaucracy, the bureaucracy has a way of getting in front of the intent of Congress, or even the sort of common sense application of the law, and sometimes we have bad results because young bureaucrats are excessively zealous enforcers; they don't apply common sense and they reach too far, or they try to apply a one-size-fits-all rule in a way that just doesn't make sense when distinguishing between a very large corporate entity versus a very small entity.

I believe that we can work through those kinds of problems. But the bottom line is that we have created a broad legal mandate in this country for environmental protection, and in doing so, we created a demand for new technologies. For the first time, industry and government demanded environmental assessment, waste management, remediation of contaminated properties, emissions reduction technologies, clean energy, improved efficiency, and a slew of other environmental services, and the private sector responded to that new demand through the creation of innovative technologies.

I would remind people that there is no inherent automatic marketplace for Abrams tanks or for B–1 bombers or for other matters of our defense industry, but we have huge companies and tens of thousands of Americans working in those industries. Why? Because we defined a threat, we put a certain amount of money into the definition of that threat, and the private sector responded and so we find a certain component of our economy therefore thriving in response to that created demand.

The environment is no different. We define a threat. If we were to put a certain amount of our revenue toward the remediation of that threat or dealing with that threat, the private sector would have the opportunity to respond and we would be the better for it.

Let me provide an example of some of the hysteria and some of the positive benefits that come out of this equation. In 1990, Congress enacted amendments to the Clean Air Act that mandated cuts in sulfur dioxide emissions from power plants and refineries. We all know the negative impact of sulfur dioxide—heart disease, respiratory illness, premature death, and so forth. Its environmental impacts range from reduced visibility, acid rain, forest crop ecosystem damage, and so forth. There was no question that we would benefit from lower sulfur emissions, but the question and controversy focused on the cost of those sulfur emission reductions.

At the outset, industry told us with certainty that meeting the cost of reductions would be roughly $10 billion, and EPA, on the other side, estimated that the cost would approach about $4 billion. Well, to our credit, we did put the requirements in place. The actual cost has turned out to be approximately $2 billion, which is

half of the EPA's estimate and one-fifth of the industry's estimates. One of the principal reasons that these costs fell so far below projection was because no one took the time or worked through the difficulties of predicting how innovation, like catalytic systems and conversions and other technologies, would cut compliance costs.

So as we look at past experience, we learn that implementing environmental safeguards in our future, whether it is further cuts in air and water pollution or protection of the public in many other ways, that we can use energy more efficiently and generate renewable, reliable and domestic energy and push the technology curve in ways that will significantly alter the outcomes of cost and significantly increase the revenue flow to companies in this country. This is a vital lesson for us to learn; an important principle for us to apply as we go forward.

When a market demands progress, change and evolution will flow and small firms play a key role in making that happen. In 1999, the Small Business Administration investigated this role and found the following: "Small businesses are sources of constant experimentation and innovation. They are an integral part of the renewal process in defining market economies. They have a crucial role as leaders of technological change and productivity growth. In short, they change the market structure." Now, I am going to put the rest of my text in the record as if read in full because I want to try to adhere to the standard here to keep this on time.

But the bottom line is this: We do not need to be trapped in a false prison publicly with respect to this dialog. We don't have to fear what we do best in this country, which is innovation and entrepreneurial activity. If we can encourage that kind of activity, with a sense to the marketplace, that it will be sustained and that we are serious, we will see, I believe, an explosion within the small business community of this country of people pursuing their efforts to privately meet the demand that they recognize is there and that is supported through the Federal dollars that would be available to help encourage the technology and the movement in those directions.

If we do that, we can again be the world leader in some of these alternative and renewable possibilities as well as other sectors of the technology field. The United States should not be lagging behind Germany or Japan or any other country in the world, given our technological prowess and the capacity of our universities and our basic research playing field, and I think it is important for us to begin to recommit to that and that is what these hearings are about.

We also want to look in these hearings a little bit at how we undo this tension between a small entity and good environmental policy. I mean, how do we make it possible for people to not feel that the bureaucracy is their enemy but rather to have a more user-friendly cooperative process. Anyone who wants to share any thoughts on those lines, we also welcome them because we really want to explore fully all of the possibilities here.

[The prepared statement of Chairman Kerry follows:]

Chairman John F. Kerry
Opening Remarks
Committee on Small Business and Entrepreneurship
"The Business of Environmental Technology"
Wednesday, August 1, 2001

To begin, I want to thank the Administration and all our witnesses for appearing today before the Senate Committee on Small Business and Entrepreneurship. Our hearing will focus on the important nexus between small businesses, job creation and environmental protection.

Over the past 30 years the nation has taken significant steps to safeguard our environment. We've enacted the National Environmental Policy Act, the Clean Air Act, the Clean Water Act, the Endangered Species Act, the Safe Drinking Water Act, Superfund and our other principal environmental protections.

Together, these laws created a broad legal mandate for environmental protection. They also created a demand for new technologies.
For the first time, industry and government demanded environmental assessment, waste management, remediation of contaminated properties, emissions reduction technologies, clean energy, improved efficiency and a slew of other environmental services. The private sector has responded to that new demand through the creation of innovative technologies.

Let me provide one example.
In 1990 the Congress enacted amendments to the Clean Air Act that mandated cuts in sulfur dioxide emissions from powerplants and refineries. Sulfur dioxide causes respiratory illness, aggravates heart disease, and can result in premature death. Its environmental impacts include reduced visibility, acid rain and forest, crop and ecosystem damage. There was no question that the nation would benefit from lower sulfur emissions, the question and the controversy focused on the cost of cutting sulfur emissions.

At the outset, industry estimated that meeting the cost of reductions would be roughly $10 billion and EPA estimated the cost would approach $4 billion. But the actual cost was approximately $2 billion, which is half the EPA's estimate and one fifth of industry's estimate. One of the reasons that actual costs fell far below projected costs is because it was impossible to predict how innovations like catalytic systems, conversions and other technologies would cut compliance costs.

As I look at our past experience implementing environmental safeguards and our future needs to further cut air and water pollution, to protect the public, and to respond to our increasing need to use energy efficiently and generate renewable, reliable and domestic energy—I see a growing need for technological innovation—and I see an increasingly important and hopefully profitable role for small businesses.

In 1999, the Small Business Administration investigated the role of small business in technological innovation. The Administration found that when a market demands progress, change and evolution, small firms act play a key role. The Administration concluded:

> Small businesses are "[S]ources of constant experimentation and innovation ... [T]hey are an integral part of the renewal process that defines market economies.
> They have a crucial role as leaders of technological change and productivity growth. In short, they change market structure."

The Administration found that:

- small firms play a unique role in technological and economic development;
- small firms innovate in new technological fields and therefore act as agents of change, whereas large firms tend to focus on established technological fields; and
- small firms provide ideas and intellectual capital that would otherwise remained untapped.

It is a small business's ability to create and innovate that is the nexus between small businesses and environmental protection.

Federal environmental laws have created enormous demand in new technological fields, and small businesses—which excel at innovating in new technological fields—have helped the nation meet that demand in a cost-effective and environmentally sound manner.

However, the environmental industry is no longer the fledging industry it was

when the Clean Air Act was enacted in 1970.

There are more than 116,000 firms and quasi-government agencies across the nation that provide regulatory compliance, assessment, pollution control, renewable energy or
other green technologies. In 1997, the environmental industry:

- produced global revenues of $486 billion,
- produced domestic revenues of $186 billion,
- created more than 1.3 million U.S. jobs, and
- exported more than $18 billion in products and services.

Small businesses are a vital part of the industry. In the U.S. in 1997, there were more than 33,000 small firms operating in the environmental industry, with combined revenues that year of more than $52 billion.

In 1998, the Department of Commerce issued a report on the environmental industry and it set forth some of the challenges the industry faces. It concluded that the following:

- Companies must not only provide "compliance" assistance to regulated firms, they must also contribute to a costumer's core business.
- The government should increase the use of performance-based policies and information-based policies.
- That we need a strategic effort by the sector and the federal government to capture a share of the growing global market.

Today, we are going to look more closely at the interplay
between small businesses, innovation and the nation's environmental and energy goals. We will hear first hand from small businesses who are innovators and risk-takers, and who are creating new technologies. We will also hear about how small business can protect themselves from rising energy prices through efficiency and conservation. We will hear about the opportunities and challenges that these businesses face.

I hope that today will generate some ideas and some consensus for legislation or policies that this Committee and the Administration can advance

that will help our small businesses, create jobs and help us achieve our environmental and energy goals.

Chairman KERRY. So I thank the panel for being with us. We have Mr. Byron Kennard, the executive director of the Center for Small Business and the Environment in Washington; Mr. Jeff Bentley, COO of Nuvera Fuel Cells, Inc., in Cambridge, Massachusetts; Mr. Thomas Dreessen, CEO, EPS Capital Corporation from Pennsylvania and Export Council for Energy Efficiency in Washington; Mr. Ed Patterson, president of the Natural Environmental Solutions, Inc., St. Louis, Missouri; and Mr. Ralph Bedogne, vice president of Finance and Government Relations, Engineered Machined Products, Escanaba, Michigan.

Gentlemen, if you would each keep your comments in summary form, your full text will be placed in the record as if read in full and I look forward to your testimony. Why don't we begin over here, Mr. Bentley, with you and we will run right down the line.

STATEMENT OF JEFF BENTLEY, CHIEF OPERATING OFFICER, NUVERA FUEL CELLS, INC., CAMBRIDGE, MASSACHUSETTS

Mr. BENTLEY. Good morning and thank you very much for allowing me to testify. I am Jeff Bentley, the chief operating officer of Nuvera Fuel Cells in Cambridge, Massachusetts. Nuvera is a designer and developer of fuel cell technologies for companies providing clean energy solutions to stationary power and transportation markets.

Nuvera employs about 130 people in the United States and 45 people in our office in Milan. Our suppliers and partners include U.S. companies like DuPont, Corning, Caterpillar, Engelhard, and Chevron, to name a few, and we also work with leading international companies, such as RWE, the second largest utility in Germany, and Mitsui, one of the largest Japanese trading companies. We hope to commercialize fuel cell technology to make the world a better place to live.

If you are unfamiliar with the technology or the Nuvera story, 10 years ago, Nuvera's senior staff worked at Arthur D. Little, a technology consulting firm. In 1997, we created a breakthrough. We were able to, in a very ungainly device, create 100 watts of electricity, enough to light one light bulb, using gasoline. This was a breakthrough because it meant that you could have an electric car with zero pollution that runs on regular gasoline—no major fuel infrastructure changes, no problems with vehicle range, and zero emission driving. News of the breakthrough was communicated worldwide as the critical link to someday realizing the commercial benefits of fuel cells and transportation.

I would like at this point in time to extend my sincere gratitude and appreciation to the U.S. DOE. They have been and continue to be one of our strongest supporters. They were there in 1992 when I approached them for funding for studies. They were there in 1997, along with the National Labs from Illinois and New Mexico at our breakthrough, supplying technology as well as insights. DOE continues to support Nuvera's groundbreaking technology development in fuel cells.

Turning back to fuel cells, how they work is pretty simple. They take hydrogen. They separate protons and electrons. The protons make water. The electrons drive an electric motor, a light bulb, or anything that requires electric energy. A fuel cell stack can, in fact,

power a home. A fuel cell stack about 1-foot long can be integrated into a unit that is about the size of your home heater and power your home and, if designed correctly, also provide all of the energy for hot water and heating.

A significant challenge to realizing this technology has always been finding ways to produce hydrogen for the fuel cell. There is a global infrastructure for gasoline and for natural gas, but not for hydrogen. Early on, Nuvera recognized this potential fatal flaw and went on to develop a fuel processor which converts gasoline or natural gas or renewable ethanol into hydrogen for a fuel cell. This enables fuel cells to operate wherever you have a gas pump, wherever you have a natural gas pipeline, wherever you have ethanol, such as the Midwest and now California, or where you have a propane tank.

Today, Nuvera designs and develops fuel cells and fuel processors into devices that range from 1 kilowatt to over 50 kilowatts, and we are integrating our proprietary technologies into power plants for transportation and for stationary power. In the United States, we intend to apply these for critical power for telecommunications applications.

Fuel cells are one of the most exciting environmental technologies today because they do have a real ability to use energy more efficiently and address global warming. This is certainly recognized by our customers and partners in Europe and Japan and we are hoping it becomes more realized in the United States, as well. Even major oil companies like Shell and BP are taking steps to address global warming, and fuel cells represent the best technology to more efficiently and cleanly generate electricity.

Bringing the discussion a little closer to home, fuel cells offer a viable alternative to generating clean, deployable, dependable energy onsite for residences, for commercial buildings, and remote applications. You can see here on the screen the progression we have made since 1999 in reducing, again, ungainly equipment into packages that will fit inside a home to power a home or a small business.

As far as commercial prospects are concerned, our near-term business plan is to export integrated fuel cell power systems to Europe and Japan. Why? Because both of those countries are further advanced than the United States in terms of environmental consciousness and the support of their government in terms of deployment of fuel cells.

Fuel cells are a revolution, not an evolution, and as a result, small businesses like Nuvera have a key role because of our ability to innovate. We are a small company seeking to bring innovation to stationary power and transportation, two of the biggest sectors in the economy. We are committed to advancing the development of technologies.

I indicated before DOE's enormous role in helping us get started. I would also like to recognize the Department of Commerce Advance Technology Program. They funded a high-risk program and that is now embedded into a system that we are shipping to Europe, exporting to Europe and Japan, and also, the DOE has helped us work with the State of Illinois and others to use ethanol in fuel cells, gaining a double advantage.

So I would urge you to continue the U.S. Government's work with companies like Nuvera to help us commercialize the technology. Some of the specific recommendations that I have help us to remove regulatory barriers that impede the use of fuel cells in utilities; help fund high-risk R&D, as you have in the Department of Energy and the NIST ATP; provide incentives for the use of renewable fuels and fuel cells—you get a double win if you are using a renewable fuel in a high-efficiency system; and finally, help the U.S. Government be a pathfinder by applying fuel cell.

The ungainly device that we used to demonstrate our 100-watt device is now on its way to the Smithsonian, and in its place we have on test a device that, instead of 100 watts, produces 90,000 watts, 90 kilowatts, in the same size. So we have made tremendous progress since 1997 and the U.S. Government has been a big part of that and we look forward to continuing to work with them.

Chairman KERRY. Thank you very much, Mr. Bentley. That is very interesting. I look forward to following up with you.

[The prepared statement of Mr. Bentley follows:]

Jeffrey M. Bentley
Chief Operating Officer
Nuvera Fuel Cells, Inc.
Cambridge, Massachusetts

Address to U.S. Senate Committee on Small Business and Entrepreneurship entitled "The Business of Environmental Technology"

Good morning, and thank you for inviting me to testify before this Committee.

My name is Jeffrey Bentley and I am the Chief Operating Officer of Nuvera Fuel Cells, Inc., which is based in Cambridge, Massachusetts. Nuvera is a designer and developer of fuel cell technologies for companies providing clean energy solutions to the stationary power and transportation markets. In stationary power applications fuel cells can power homes, businesses and telecommunications installations. In transportation applications, fuel cells can replace the internal combustion engine with cleaner, more efficient power.

Nuvera Fuel Cells presently employs 130 people in the US and 45 in our office in Milan, Italy. Our suppliers and partners include leading US companies such as DuPont, Corning, Caterpillar, Engelhard, Honeywell, and Chevron to name a few, as well as a leading US automotive manufacturer. We also work with several leading international firms such as RWE, the second largest utility company in Germany, and Mitsui Corporation, one of the largest Japanese trading companies. Our hope and goal is straightforward: we want to commercialize fuel cell technology to make the world a better place in which to live.

For those unfamiliar with Nuvera or the technology, let me briefly summarize the highlights. Nuvera's involvement in fuel cells dates back 10 years to when many of Nuvera's senior staff worked for Arthur D. Little, a world leader in technology development and management consulting. While there, we participated in an historic event that paved the way for small companies like Nuvera to establish credibility and gain acceptance in the business and financial communities. In 1997, our staff achieved a technological breakthrough by demonstrating that we could convert gasoline into hydrogen to power a fuel cell. This means that you can have an electric car that runs on regular gasoline (not as esoteric and hard to find fuel like methanol) with improved fuel economy and virtually no pollution. No major fuel infrastructure changes are required and there are no problems with vehicle range. News of the breakthrough was communicated worldwide as the critical link to someday realizing the commercial benefits of fuel cells.

At this point, I would like to extend my sincere gratitude and appreciation to the US Department of Energy, specifically their Transportation Fuel Cell Program, for their ongoing support over the years. DOE has, and continues to be, one of our strongest supporters. They were there in 1992 when I first approached them for funding studies on fuel cells. Our 1997 breakthrough program was sponsored by DOE and included technology and support from National Labs in Illinois and New Mexico. And DOE continues to support Nuvera's groundbreaking research to advance fuel cell

technology. Suffice it to say, without their support, fuel cell technology might not be where it is today – that is, one step closer to becoming a commercial reality.

Turning back to fuel cells, the technology is as simple as it is complex. Essentially fuel cells operate like a battery. They generate electricity as long as a source of hydrogen is provided. Simply put, fuel cells typically comprise metallic plates, membranes, and catalysts that work to separate the hydrogen into protons and electrons. Once separated, the protons are mixed with air to create a by-product of water. The electrons are then used to create an electric current. The number of cells used in a fuel cell stack determines the energy output. For example, a fuel cell stack that measures one foot by six inches and includes 50 cells may generate up to 5 kW of electric power- enough for a typical residence. This means that a complete fuel cell system for home power can be about the size of a typical hot air furnace.

A significant challenge to commercializing fuel cell technology has historically been finding ways to produce hydrogen. There is a global fuel infrastructure for petroleum and natural gas but not for hydrogen. Early on, Nuvera recognized this potentially fatal flaw and went on to develop the fuel processor to convert hydrocarbon, renewable, and synthetic fuels into a hydrogen-rich gas, which can then be used to power the fuel cell. This enables fuels cells to operate wherever there is a natural gas pipeline, a gasoline filling station or a propane tank. And as alternative fuels like ethanol gain acceptance in the Midwest and California, this new technology will allow ethanol to power fuel cell cars and premium power applications.

Today, Nuvera designs and develops multi-fuel processors that are capable of converting gasoline, methanol, ethanol, propane, natural gas, butane, diesel, and home heating oil into hydrogen at power capacities ranging from 5 kW to 250 kW. We also design and develop fuel cell stacks ranging in size from 5 kW to 50 kW. And we are integrating these two proprietary technologies into distinctly unique modular stationary power units designed for residential systems and telecommunication applications

Fuel cells are one of the most exciting environmental technologies today because of the tremendous potential they offer all of humanity. Let me start with global climate change. Average temperatures are rising. Glaciers are receding. And weather systems are growing more intense. Scientists and the leaders of many other countries attribute these phenomena to the excessive release of carbon dioxide into the Earth's atmosphere. Even major oil companies like Shell and BP are taking steps to address global warming. As we know, industrial activity contributes significantly to global warming and fuel cells represent the best technology alternative to more efficiently and cleanly generate electricity.

Bringing the discussion a little closer to home, fuel cells also offer a viable alternative to generating clean, dependable energy on-site – for individual residences, commercial buildings, and remote applications where there is little or no access to the electric power grid. Such applications called distributed generation could virtually eliminate concerns over future power shortages and outages. Rather, consumers could choose how, when, and which fuel to use to generate their power. All of which will contribute to the reduction of emissions as a more efficient fuel cell system replaces our Nation's aging power production, distribution, and transmission system. And by using ethanol or propane, these fuel cell systems will contribute to rural development.

As far as commercial prospects for fuel cells are concerned, Nuvera's near-term business plan currently calls for exporting integrated power modules to Europe and Japan. Why? Because both countries are further advanced than the United States in terms of their environmental consciousness and the support of their governments for the deployment of fuel cells. The differences notwithstanding, we intend to pursue residential stationary power opportunities at home upon successfully engaging a US-based manufacturing partner and planning our distribution strategy.

Although the US residential market for fuel cells remains a few years away, there is an immediate opportunity for alternative power systems in the U.S. telecommunications industry. Here, the primary drivers for change include power quality, system reliability, noise reduction, and environmental cleanliness. While some telecommunications providers and data systems operators are turning to diesel generators to provide assured power, fuel cells represent a far cleaner, more efficient technology to meet the industry's growing needs.

In summary, fuel cells represent a clean, efficient, quiet, and reliable alternative to generating electricity. What they are not – today – is commercially available and affordable. That's where we need your support.

Fuel cells are a revolution, not an evolution. As a result, innovation is required. For a small business like Nuvera, the key to our continued success rests in our ability to be innovative. We are a small company seeking to bring innovation to transportation and power production, two of the largest sectors in the economy. Unlike larger firms, we are not tied to products, processes, and stakeholders with a conventional outlook. We are, however, committed to advancing the development of technologies that can have a positive impact on our world.

Over the last decade, each of Nuvera's employees has demonstrated focus, passion, dedication and perseverance to allow Nuvera to stay at the forefront of our technology. But we have been aided enormously by the U.S. government. I've already described DOE's role in helping Nuvera achieve our initial innovations, but here are some other examples of the tangible way in which the U.S. government has helped Nuvera in the past:

- The Department of Commerce, Advanced Technology Program supported Nuvera in the development of a high risk, innovative fuel processor. The risk paid off and that fuel processor is now integral to the demonstration units that Nuvera will deploy this year in the U.S., Europe and Japan.

- Working with the DOE Transportation Fuel Cell Program, the State of Illinois, and the ethanol industry, Nuvera has perfected the ability to use renewable ethanol in fuel cells. This has attracted the attention of Caterpillar and forward thinking automakers, such as Peugeot who see ethanol as an important fuel for the future.

As leaders of our Nation's future and guardians of our environment, I urge you to work with small businesses like Nuvera to help us commercialize the technology that has been developed in partnership with the U.S. Government.

- Help us by removing regulatory barriers that impede our progress toward interconnecting federal standards and safety regulations. Nuvera does not have the resources to negotiate interconnection standards and safety standards on a state-by-state basis. A uniform standard for fuel cells can be coordinated by organizations like DOE and NIST to lower market risk.

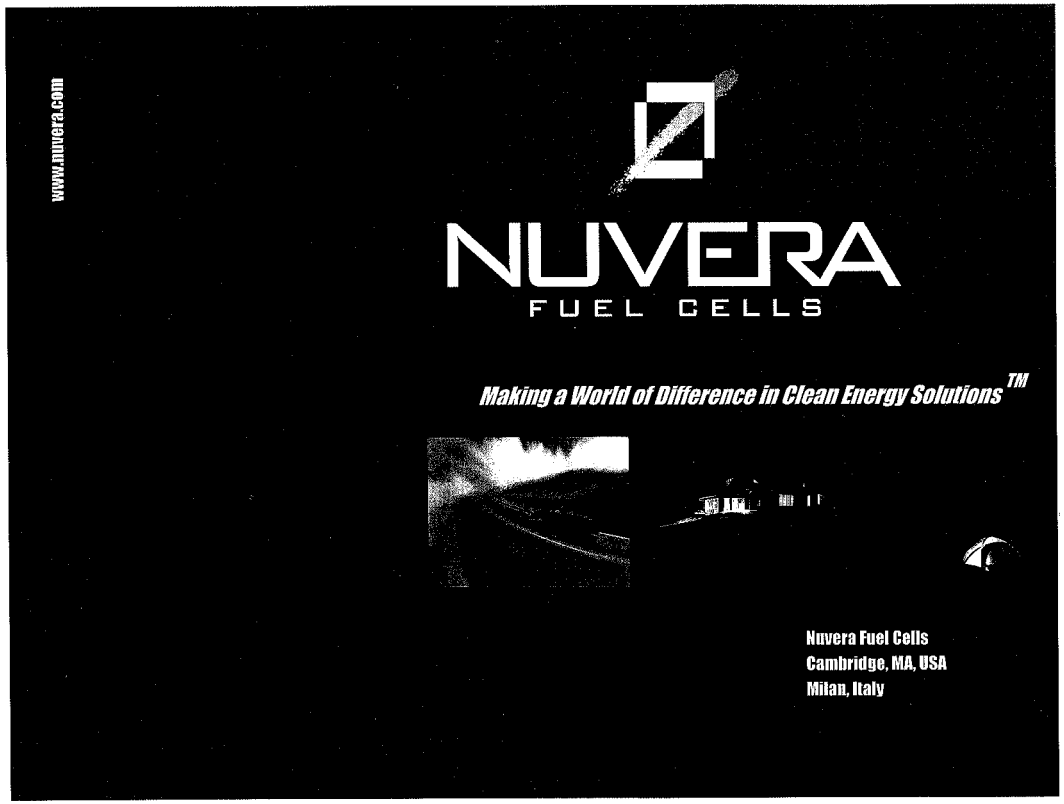
- Help us by continuing to fund high-risk research and development programs aimed at advancing technologies like fuel cells for transportation and stationary power applications. Research and development supported through the DOE Transportation Fuel Cell Program has brought fuel cell technology to the point where applications requiring lower power fuel cells, with less stringent cost requirements, will allow earlier market introduction than for automotive fuel cells. The NIST ATP is another effort that is helping to fund high risk-high payoff development in fuel cell power systems.

- Help us by providing incentives for the use of renewable fuels such as ethanol in fuel cell systems, gaining a double advantage from clean, efficient fuel cell power systems.

- And finally help us by making the U.S. government a path-finding leader by applying fuel cell technology to federal buildings and other installations.

I also urge you to continue to support and possibly enhance the DOE Transportation Fuel Cell Program which is helping to drive emerging markets where technical and cost requirements aren't as stringent, such as portable power, telecommunications, etc. The manufacturing experience and capability developed for portable power fuels cells will be instrumental in lowering the cost of automotive fuel cells, facilitating their commercializationlater this decade.

That ungainly stainless steel apparatus that allowed Nuvera to demonstrate our gasoline fuel cell breakthrough in 1997 is today on its way to the Smithsonian. And major automakers have joined Nuvera in seeking to perfect this technology. In closing, I hope that 50 years from now, my children will be able to enjoy the quality of life I've enjoyed, and the kind my father did before me. I want them to be able to stand in our cities and breath clean air. I want them to live in homes that never go dark. And I want them to know that their government is continuing to provide leadership and support for small companies involved in environmental and energy technologies.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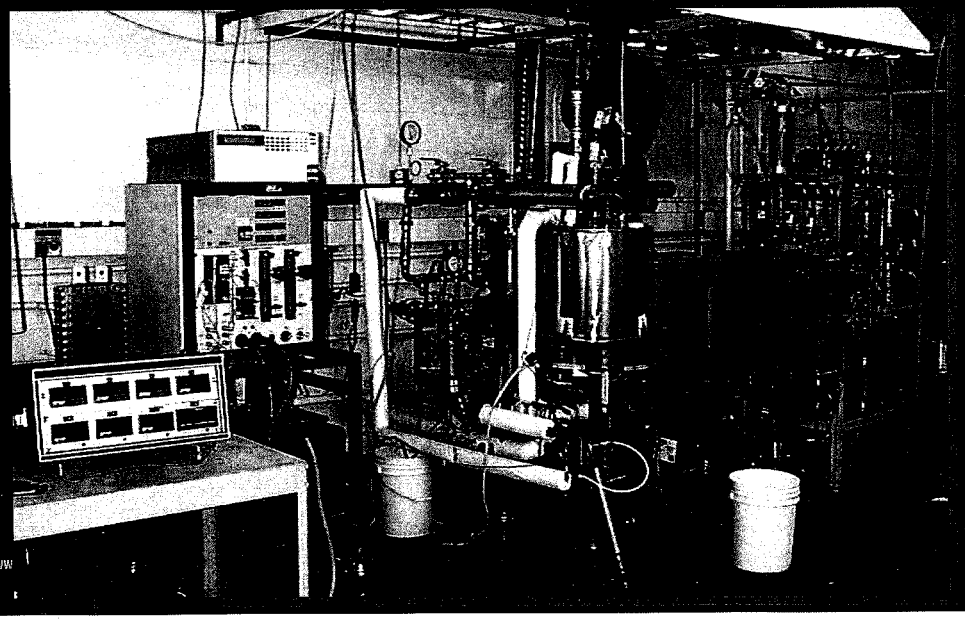
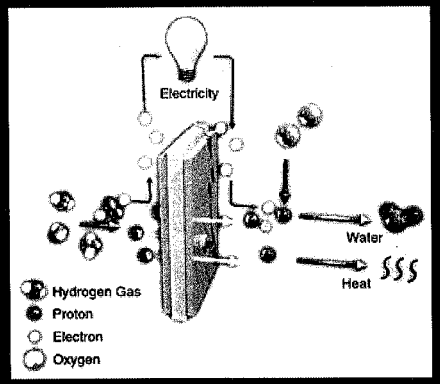
1997 Gasoline Fuel Cell Breakthrough- 100 Watts



How a Fuel Cell Works



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Fuel Cell Stacks

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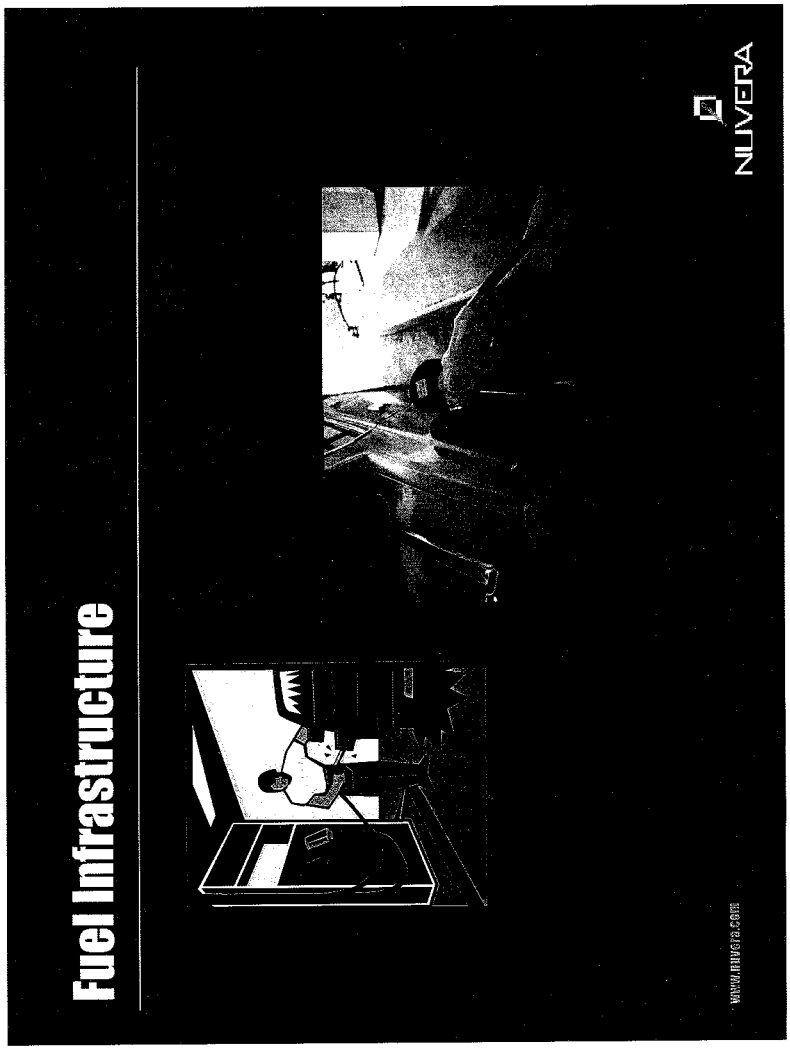
Fuel Infrastructure
NUVERA
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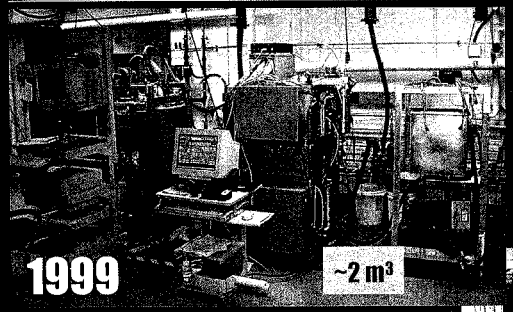
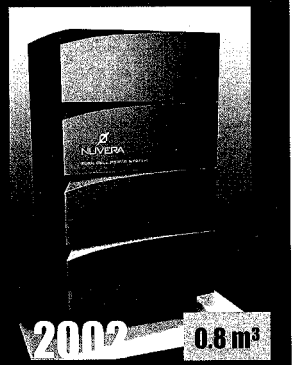
Stationary Power





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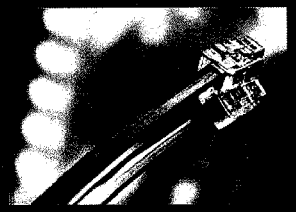
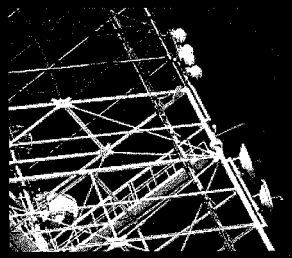
Telecommunications





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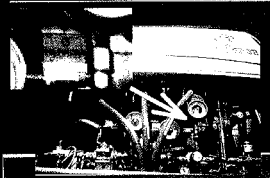
Nuvera Fuel Cells: Stacks Delivered



PSA - 2001
HYDRO-GEN project
Minivan (1 X 30kW stack)

NEOPLAN - 2001
BUS (3X10kW stacks delivered)

SCANIA - 2001 (TO BE PRESENTED)
BUS (2X30kW stacks delivered)

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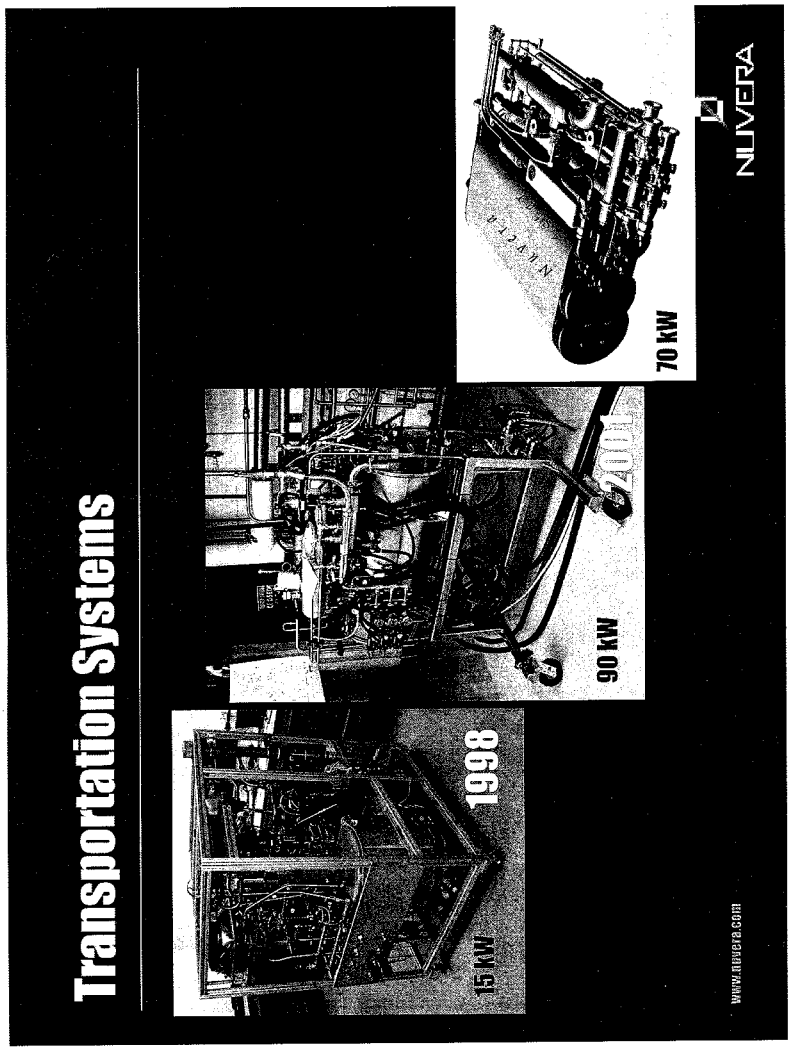
Transportation Systems
15 kW
1998
90 kW
2001
70 kW
NUVERA
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1997 Gasoline Fuel Processor-for the Smithsonian

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Chairman KERRY. Mr. Bedogne.

STATEMENT OF RALPH BEDOGNE, VICE PRESIDENT OF FINANCE AND GOVERNMENT RELATIONS, ENGINEERED MACHINED PRODUCTS, INC., ESCANABA, MICHIGAN

Mr. BEDOGNE. Thank you very much. As you mentioned, Senator Kerry, the business—we are in a different element. We actually deal with diesels, and there is a perception out there that diesels are dirty and diesels do pollute, and they do add to the pollution. But we have been able to develop some technology that has helped that.

My written comments, which are part of a handout, summarize in detail a number of points we as small businesses face. I would like to elaborate on a few of those. First, it needs to be well understood by this Committee and the general public that small businesses can contribute and do contribute daily on cutting-edge technological solutions facing our Nation. One of the main reasons for this is that our large business partners have and continue to be preoccupied in the diverse activities that are required to run their core business. This has allowed smaller businesses like EMP to capitalize on the opportunity of adding value to our customers' products. This value-added business development principle has been our mantra since the beginning of EMP and obviously it has worked, and I will show you as our growth demonstrates.

As larger companies are required to meet very specific environmental and conservation regulatory limits, their focus is on finding viable and affordable solutions to these issues. This is not to say that the larger companies are not doing new product development. On the contrary, in our business of diesel engine manufacturing, our customers continue to develop new engine platforms on a regular basis. But what EMP has been able to offer through our engineering and product development is that process of quickly designing or redesigning technologies for these next-generation platforms in a timely and cost-effective manner.

One important component for our success has been the capable staff at the Federal levels who have identified innovative research and development ideas and concepts that concur with ours. A specific example, as you mentioned, is the U.S. Army, the National Automotive Center, located in Warren, Michigan, under the direction of General Caldwell and Dennis Wynne. New and innovative ideas and concepts are tested and implemented in a speed we as small businesses have to react to, without layer upon layer of documentation and paperwork. With a fleet of over 250,000 medium- and heavy-duty vehicles at the NAC, anything that can improve engine performance and efficiencies affects the bottom line, and then it can be tested, as it is now, for commercialization, and that is what has been very unique in the last 2 or 3 years of our, I will call it, adventure with the agencies and departments. Everyone is talking about, let us bring this to market, which we as small businesses rely on. We are not here to get a line of revenue to just subsidize our research and development.

Another staff is located at the Office of Heavy Vehicle Technologies at the DOE, and this is under the direction of Tom Gross and Jim Eberhardt. Identifying our capabilities, much like a bank

or a company does proper due diligence, the OHVT was able to quickly decide that EMP could do this technology and was capable of doing it. In less than 6 months, using DOE funds, Argonne National Lab as the steering committee, and our technology of an advanced oil filtration system, we were able to bring to a test facility the proven technology and we are now ready to commercialize.

Historically, programs that have helped us—and I say that in a past tense because we have continued to grow and we will continue to grow—programs like STTR and SBIR programs occasionally come under budget scrutiny. EMP is an example of how sound business practices along with innovative research and new product development can work. Using SBIR funding as a conduit for proof of concepts is appropriate for small businesses and they also fuel larger businesses. We shouldn't stall innovation. We need to work together with some of these larger businesses because it is a proven opportunity for us.

I think the playing field is set when we require larger businesses to percent cost share. This was something that came out of discussions in the government the past 3 or 4 years, and cost share eliminates those abuses. If I am going to put in 50 percent of $1.6 million, that means I am going to bring it to market. I am not going to use it just for the sake of having this revenue flow.

That cost share requirement should alleviate a number of ownership issues, also, with patents and some obtrusive negotiations that we have to deal with. If we own the technology, it should be our technology. The government should get credit and should be on the same page with us when we bring it to market.

Smaller companies can spend as much on contractual review and negotiations as they can on testing, and that is obtrusive because sometimes we can't bring innovative ideas when we are spending most of our time and money going over contractual review. I think a real simplistic idea—a business principle that can be brought up—is why not have a boilerplate agreement across all agencies, across all departments that fit, so we are not doing something for the DOE that is different from the DOD that is different than the DEQ. Those things make some sense.

I have some slides on my company overview, but I think it is important that we hear some others. You have those in the permanent record, and I will be more than willing to answer questions. But I think the important thing is that we, as a small company, have grown since our president, Brian Larche's, inception of this facility out of the ashes of a larger business leaving our community. In the 1980's when cash cows were moved to larger metropolitan areas, our little town in Escanaba, Michigan, in the Upper Peninsula, of less than 15,000 people, he took an idea and a concept with less than $250,000 worth of sales and has increased those sales to $150 million this year and over 450 employees. We have not stopped doing research and development.

Research and development has been the key to our success, and that success is based on the fact that we are bringing new and innovative ideas. One idea that can add to the parasitic loss and the efficiencies of diesel engines is the electronic and controllable water pumps, and these are being tested and bench tested and are on trucks at the National Automotive Center today.

Chairman KERRY. Mr. Bedogne, that is very interesting, and I appreciate your idea. It is a good idea. We should follow up on that in questions.

[The prepared statement of Mr. Bedogne follows:]

Mr. Ralph Bedogne
Vice President of Finance and Government Relations
Engineered Machined Products, Inc.
Escanaba, Michigan

Engineered Machined Products is a company that embraces change. In the past ten years, the company has transformed itself from being a supplier of diesel pumps and fuel components for one customer into a company that listens and reacts to the needs of its customers; designs, develops, and engineers new concepts and ideas for the entire industry. With 65% market share, E.M.P is now the leading domestic supplier of diesel engine components for six major diesel engine manufacturers including Navistar International, Caterpillar, Cummins, Detroit Diesel, John Deere, and GMSPO. As these diesel engine manufacturers continue to diversify their operations, E.M.P.'s role in research and development continues to grow, adding consistency, innovation, and value to their products.

Due to new and upcoming federal constraints and regulations regarding emissions, wastes, and other environmental issues related to the diesel industry, E.M.P. has developed new technology designed to not only meet these standards but exceed them. For example, the E.M.P. Advanced Electric Pump will regulate engine temperature in order to increase fuel economy, with the potential to save over $5 billion per year in fuel costs. It is designed to improve emissions by helping to optimize combustion temperature, reduce engine noise by eliminating gear and belt drive noise, and cool the engine after shutdown to decrease wear, adding several years to an engine's life span. In the past, water pumps were designed to leak, accounting for approximately 95% of pump warranty claims. This revolutionary product was designed without mechanical seals, making it leak free. The E.M.P. Advanced Electric Pump can be mounted anywhere in the engine compartment, unlike traditional pumps, which are engineered for one particular engine, making repair and redesign very difficult. This pump will decrease inventory levels for both military and commercial applications, making field replacement much faster and easier. In alliance with Argonne National Laboratory, E.M.P. is in the process of developing another innovative new product. The E.M.P. Advanced Oil Filtration System filters up to 15 times smaller particles and extends filter life to 100,000 miles. The system operates independently of the engine lubrication system, has soot control capability, and more capacity for contaminant retention. It contains recyclable media cartridges, and has the potential to eliminate oil changes, making it very environmentally friendly when compared to traditional oil filters. These two patented technologies are designed to serve as a benchmark for environmental conformity and have been developed utilizing technology including Finite Element Analysis, Computational Fluid Dynamics, and proprietary software designed by the company.

As a small but emerging company, Engineered Machined Products has developed sponsored research relationships with academia, government, and other innovative companies in order to implement new technology. In doing this, E.M.P. has created strong commitment to the city of Escanaba, bringing 420 jobs to a city with less than 15,000 people, making it the second largest private employer in the area. E.M.P. has

sponsored multiple youth and community events and has enhanced the overall economic condition of the region.

For its efforts, E.M.P. has gained much recognition. Brian Larche, president of the company, was awarded the 2001 John G. Thodis Michigan Manufacturer of the Year Award, the E.M.P. Advanced Electric Pump was awarded the grand prize in the 2001 *Design News* "Excellence in Design" competition, the Department of Energy granted E.M.P., in partnership with Caterpillar, a research and development project to generate a more electric truck initiative, and the Department of Defense has granted a Dual Use Science & Technology project to E.M.P. for $1.68 million.

Despite its transition and ongoing accomplishments, Engineered Machined Products still faces challenges ahead. Due to the extensive recognition the company has gained in recent years, many agencies are requesting the help of E.M.P.'s innovative and creative design teams. In order to accommodate these requests the company needs adequate funding and support.

Accord and unity between government agencies will aid in prompt action by E.M.P. and many small businesses like it. The main reason that E.M.P. can build and advance technology so quickly and efficiently is because the company foregoes any internal bureaucracy that may hinder the process. As the company continues to grow, this becomes more and more difficult due to formalities imposed by the government. In order to keep up with the amazing speed of technology, the government needs to be more rational and businesslike in its negotiations. Funding for an innovative new product, having the potential to benefit both the environment and the economy, needs to be expedited. Contract negotiations need to be streamlined and made simpler, with the government specifying either proprietary use or commercialization by the business, but not both. An end must also be put to the incertitude of "march in" rights. Many small technological companies, who have put countless amounts of time, money, and other valuable resources into a product, fear having it taken away suddenly by government agencies.

Small businesses have the ability to make great strides in technology, which in turn attract government agencies to participate in cost shares. These cost shares are very valuable in theory. However, there are many problems involved in obtaining help from the government, which often causes technology to go stale. In order to solve these problems, government needs to streamline the distribution of funds and lessen imposed restrictions. Collaboration and cooperation between government agencies would eliminate the risk small companies have when trying to progress into technological fields.

Engineered Machined Products has gained great success and recognition from its creative and innovative development of high quality economically and environmentally sound products. Much of its success has been with the help of government funding. We hope that many future endeavors and developments can also be attributed to an improved, cooperative, streamlined government funding process.

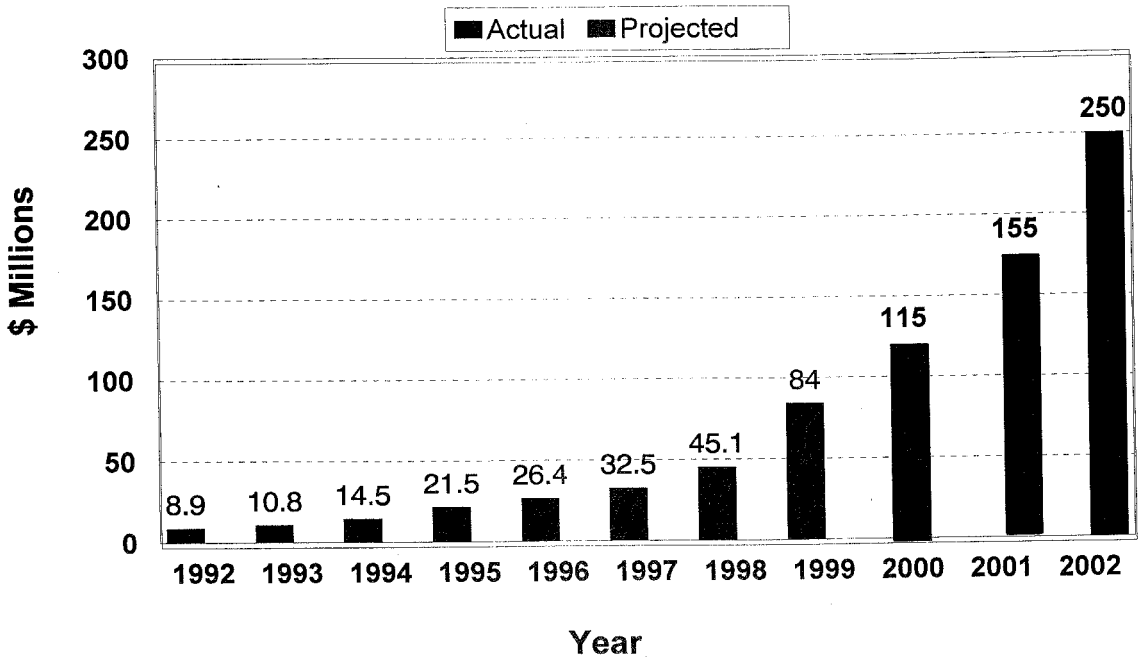
Company Overview

Powering The Future®

- ✓ Established 1981; Under Present Ownership Since August 1, 1991
- ✓ 2000 Sales - $115 Million
- ✓ Estimated 2001 Sales - $ 155 Million
- ✓ Current Employment - 465
- ✓ QS 9000 Since 1998
- ✓ **Plant I (Escanaba, MI)**
  - ✓ 251,000 Square Feet, Precision Machining,
  - ✓ Assembly and Testing
- ✓ **Plant II (Escanaba, MI)**
  - ✓ 48,000 Square Feet, Specialized Machining
- ✓ **Plant III (Greenfield, IN)**
  - ✓ 60,000 Square Feet, Assembly
- ✓ **Research and Development Facility (Escanaba, MI)**
  - ✓ 30,000 Square Feet, Development of Both Conventional and Revolutionary Products
- ✓ **Key Customers:**
  - ✓ Navistar, Caterpillar, Cummins, John Deere, Detroit Diesel, GMSPO
- ✓ **Key Products:**
  - ✓ Water Pumps, Lube Pumps, Front Covers, Cylinder Heads, Pulleys

Annual Sales

Powering The Future®



Confidential

Research & Development Capabilities

Powering The Future®

Facility

30,000 Square Feet
50% is Laboratory Space

Equipment

Prototyping Lathe & VMC
State-of-the-Art DTM Rapid Prototyping
(6) Water Pump Testers
(6) Oil System Testers
(1) Cold/Environmental Chamber
(5) Seal Testers; 18 seals at a time
(1) MTS High Pressure Tester – 5/01
Specialized Performance & Reliability Testers
CMM for precision measurement and studies

People

(19) Engineers & Designers
(5) Lab/Design Assistants
(1) Manufacturing Engineer

Software

3-D CAD - ProE, IDEAS
FEA - Mechanica
CFD - CFX
Motor - Ansoft
In-House - Matlab, MathCAD

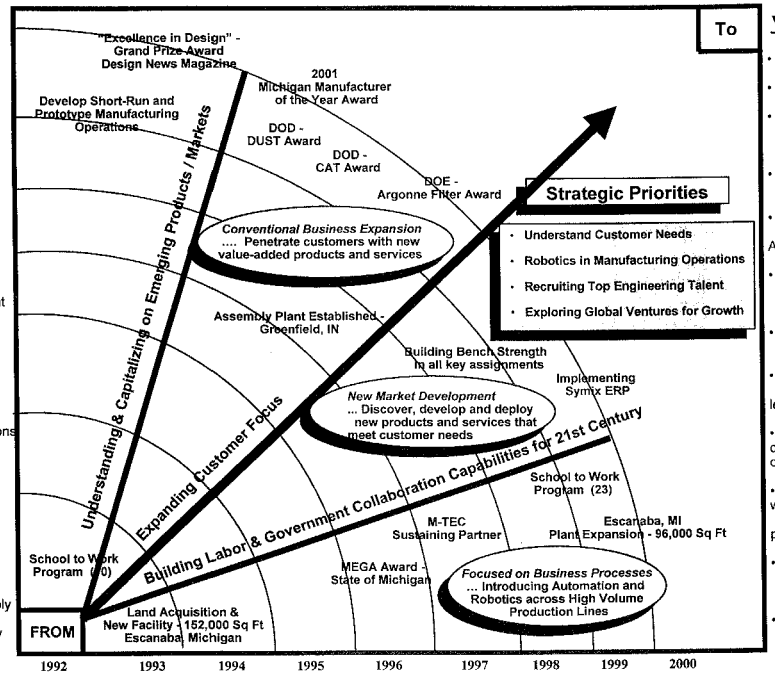
Business Research & Legal Support

Intellectual Property Expertise
In-house Patent Novelty Search
Focused on Creative Solutions and Meeting the Needs of our Customers.

Engineered Machined Products, Inc. - Business Transformation Map

Where We Are

- Recognized industry leader in design & manufacture of water pumps, lube pumps, fuel rails, cylinder heads, pulleys, turbine housing and oil pumps.
- QS-9000 Certified.
- Growth in new business quotes resulting from trend to manufacturer outsourcing.
- Vision for development and testing of conventional & revolutionary new products in place.
- Greater focus and management emphasis being brought to manufacturing operations
- Clearly dedicated to 100% on-time delivery, defect-free products and services through focus on continuous improvement.
- Strong employee and community partnership.
- Committed to assembly and distribution points that are close to our key customers.



	1992	1993	1994	1995	1996	1997	1998	1999	2000
Sales (in millions)	$ 8,897	$ 10,828	$14,328	$21,548	$26,438	$32,478	$44,410	$87,046	$ 115,000
Employees	95	102	125	171	199	238	282	375	460
Sales/Employee	$ 93.6	$ 106.2	$ 114.6	$ 126.0	$ 132.9	$ 136.5	$ 157.9	$ 232.0	$ 265.0
Material Content (%)	53.6	52.4	52.1	49.7	48.8	46.8	48.0	60.0	
Added Value/Employee	$. 40.6	$ 50.6	$ 54.9	$ 63.4	$ 68.0	$ 72.6	$ 81.9	$ 92.8	

Where We're Headed

- World Leader
- Profit Margins > 15%
- Leveraging knowledge to share, integrate and focus overall efforts.
- Talent base which is envy of the industry.
- State-of-the-Art Manufacturing, Automation & Robotics
- Ahead of expense management curve (added value/employee).
- Technology as enabler to new business.
- Penetrating opportunities with key customers by leveraging core products.
- Sense of urgency and collaboration across the company.
- Outcomes driven mindset where all activity leads to growth and increased profitability.
- Individual performance linked to organizational goals.
- Delivering significant Shareholder Value

Chairman KERRY. Senator Bond has joined us. I have an urgent phone call I need to take. Do you want to comment now and make an opening statement?

STATEMENT OF THE HONORABLE CHRISTOPHER S. BOND, A UNITED STATES SENATOR FROM MISSOURI

Senator BOND. I would love to. I will just cover for you until you get back.

Chairman KERRY. You have made a career out of that. Thank you, sir.

[Laughter.]

Senator BOND. I have learned from an expert. In any event, my thanks to the witnesses for being here today. Please accept my apologies for arriving late. I was hosting a breakfast on problems of maintaining good information among governmental agencies, and those of you who have dealt with governmental agencies may appreciate the need for that. In about 35 minutes, I have to join a markup on some very important health legislation that is coming out of the Health, Education, Labor, and Pensions Committee.

But this is a fascinating subject and hearings today for me. I believe the development, sale, and use of environmental technologies is a tremendous opportunity for small business. It is going to be good for the environment.

Mr. Bedogne talked about the small town in Michigan, 15,000 that got hit with the big companies leaving. You hit a nerve. My hometown of Mexico, Missouri, is 12,000 people and the major industries there, basic industries have been bought out. The employment is declining. We are looking at bringing a soy diesel processing plant, among other things, perhaps set up as a cooperative with soybean producers to make soy diesel, and I know you are working in the diesel area. I hope that soy diesel can be used.

We have also worked with the Missouri Soybean Association to get soy diesel used by the Army in training, because they used to use petroleum-based or diesel smoke to mimic battlefield conditions. We are working to get them to use soy smoke, environmentally much more friendly. The only danger is that the soldiers may want french fries instead of focusing on their efforts.

[Laughter.]

Senator BOND. But we are very excited today that we have a Missouri small business who is going to be testifying. The business uses one of my, I think, exciting new areas of interest, biotechnology. Mr. Patterson has developed a natural, nontoxic, biodegradable product extracted from bioengineered seaweed that can remove pollutants from the air, a product sprayed into industry plant emissions to cut the release of volatile organic compounds. It is really exciting.

This past weekend, I visited Carthage, Missouri, and there, a small company, a joint venture, Renewable Environmental Solutions, was breaking ground on a plant. I happened to get a grant through the EPA for a process that will take all the waste from chicken and turkey processing plants, and I will skip describing what that waste is—they refer to it euphemistically as low-value organic material—and turn it into natural gasses that can fuel the operation plus turn out 200 barrels of sweet crude grade oil a day

plus other environmental byproducts that, if this all works together, can have a tremendous impact on the environment, first of all, and even provide energy.

So we in Missouri are very excited about the developments that are going on, and they are going on through small entities. We know that, No. 1, Mr. Bentley has said that one of the problems is environmental, is sometimes regulation. My colleagues earlier this spring heard a Missouri small business testify that the company was shut out of an EPA rulemaking on ozone-depleting chemicals. The EPA did not conduct the proper small business impact on the rule and they did not know this regulation would prevent the small business in my State from developing new environmentally-friendly products.

EPA at the time was very proud that they had managed to keep the regulation secret before they proposed it. Well, Mr. Chairman, as you know, I have proposed the AAA, Agency Accountability Act, to help ensure that agencies give open and full consideration to small business before issuing a regulation that we think could help.

I also look forward—I hope I will be able to stay for the testimony of the Administration witnesses. I will have questions for them. Your colleague has called a markup on the Health Committee today that, when they buzz me, I am going to have to go join. But the EPA has a lot of experience in funding research and the Energy STAR program is an important part of our Nation's effort to promote energy policy.

I think that the Vice President's National Energy Policy has very strong and clear commitments to advance the environmental technologies, increase energy supply, and encourage cleaner, more energy efficient use. I think the Administration is on the right track with a sound energy policy. By bringing together the resources of the EPA, DOE, and the ingenuity of small business, there is an incredible potential to raise awareness of the Nation's energy needs and serve the vital resources and protect the environment.

Mr. Chairman, I thank you very much for holding this hearing to give these tremendous efforts and these exciting technologies the opportunity to be shared with our colleagues. So with that, thank you.

Chairman KERRY. Thank you, Senator Bond.

[The prepared statement of Senator Bond follows:]

U.S. SENATOR CHRISTOPHER S. BOND
Opening Statement
"The Business of Environmental Technology"
August 1, 2001

Senator Kerry, thank you for holding this hearing today on the important topic of environmental technology. Development, sale and use of environmental technologies are good for small business and good for the environment.

Missouri small businesses are at the forefront of developing environmental technologies. We have a small business here today which is using one of my favorite methods - biotechnology - to develop a product which will clean the air and reduce consumption of fossil fuels.

However, small businesses face barriers to innovation and marketing of their technologies. You may recall the case of a Missouri small business which testified before this Committee earlier this Spring. That company was shut out of an EPA rulemaking on ozone depleting chemicals. EPA did not conduct the proper small business impact review of the rule. Therefore, EPA did not know its proposed regulation would likely prevent the Missouri small business, and others like it, from developing new environmentally friendly products. EPA was actually proud that it managed to keep the regulation secret before it was proposed. My Triple-A, Agency Accountability Act, will ensure agencies give open and full consideration to small businesses impacted by proposed rules. I hope this Committee will consider it soon.

I am also glad that the administration is here to testify about its efforts to promote environmental technologies. EPA has a lot of experience in funding research into these technologies and the EnergyStar program is an important part of our nations efforts to promote energy efficiency. Similarly, Vice President Cheney's National Energy Policy will advance environmental technologies to increase energy supplies and encourage cleaner, more energy efficient energy use.

Thank you again Mr. Chairman for holding this hearing and I look forward to the witness testimony.

Chairman KERRY. We were in the middle of testimony. Senator Edwards, do you want to make any statement?

Senator EDWARDS. I have a brief statement which I would like to make, if that is OK with the Chairman.

Chairman KERRY. Absolutely.

STATEMENT OF THE HONORABLE JOHN EDWARDS, A UNITED STATES SENATOR FROM NORTH CAROLINA

Senator EDWARDS. Thank you, Mr. Chairman, very much. First of all, thank you for holding this hearing. The importance of the small business economy, we are all aware of, and the need to promote environmental technology make this hearing particularly timely. Small business is the backbone of our national economy, which we all know, and we need to do everything in our power to promote their growth.

I would like to talk today about one particular environmental technological innovation involving dry cleaning. Toxic and flammable solvents are used in 95 percent of the 35,000 small dry cleaning businesses in our country. Dry cleaned clothes are the primary source of toxins entering our home, endangering our health. These solvents often leak from storage tanks, spill on the ground. They contaminate property where businesses are located. They are a part of the large number of brownfields that we have in this country.

There is a scientist in North Carolina named Dr. Joseph Simone who has developed an environmentally-friendly alternative to these solvents. He and his graduate students developed the process that cleans clothes using liquid carbon dioxide and special detergents, and this method has been commercially available since February 1999. Several machines are in operation around the country. The EPA has issued a case study declaring that this is a viable alternative for dry cleaning. R&D Magazine named Dr. Simone's technology one of the 100 most innovative technologies that can change people's lives in this country.

This new technology is becoming increasingly recognized as a safer, cleaner alternative to traditional dry cleaning, but it is still expensive to use. I think we need to do everything we can to encourage the use of these kinds of technologies as a way to improve our health and to protect our environment.

Today, I will be introducing legislation that will provide new and existing dry cleaners a 20-percent tax credit, 40 percent for those who are in enterprise zones, as an incentive to switch to environmentally friendly and energy efficient technology. The idea is that this legislation will encourage the use of these new technologies and reduce the use of chemicals that are hazardous to the health of all of us. It will also help prevent contamination of our drinking water, protect the land on which these dry cleaners exist, and the legislation is supported by groups such as the Sierra Club and the Physicians for Social Responsibility.

Mr. Chairman, when these environmentally-beneficial technologies are available, commercially available, it makes sense to provide modest incentives for people to use them. That is the purpose of this legislation. I hope we will be able to get it through this Committee and through the Senate so that we can encourage the

use of these kind of environmentally-friendly technologies, which I think are not only important to small businesses, but important to the environment and the health of all Americans.

Mr. Chairman, thank you for the time.

Chairman KERRY. Senator Edwards, thank you very much. That sounds very exciting. I mean, that is exactly the kind of innovative effort that often needs to break into the marketplace and it needs some help from good policy to do so. I congratulate you on that, and I think it is terrific.

Senator EDWARDS. Thank you.

Chairman KERRY. Mr. Kennard, thank you, sir, for letting us interrupt you for a moment.

STATEMENT OF BYRON KENNARD, EXECUTIVE DIRECTOR, THE CENTER FOR SMALL BUSINESS AND THE ENVIRONMENT, WASHINGTON, D.C.

Mr. KENNARD. Thank you, and I thank you and Senator Bond for your leadership on behalf of the small business community. It is much appreciated.

The Center for Small Business and the Environment was founded in the belief that many environmental problems can be solved through innovations that increase efficiency and resource productivity. As Senator Kerry has pointed out, most such innovations come from small organizations, not large ones, and this connection provides a basis for collaboration that profits small business and helps protect the environment.

For example, a solar water heater can dramatically reduce the utility bill of a cafeteria or a laundry or any small business that uses a lot of hot water. Now, chances are, these water heaters, like many other energy efficient and micropower technologies, were conceived and designed by a small business innovator, manufactured by a small manufacturer, and marketed by a small business. Then to complete the cycle, it is also likely that such technologies will be installed and serviced by other small businesses.

I hope this example conveys some sense that small businesses are also the beneficiaries as well as the innovators of technologies that are efficient and innovative. In this connection, I would like to comment on the President's National Energy Plan. We are urging the energy planners to add a special focus on small business to the energy plan, something that it does not have now.

We think that small business has special problems and opportunities in the energy area. Small businesses are often most at risk from rising energy costs and uncertain power supplies. A restaurant can be damaged by a rolling blackout and its refrigeration lost and employees laid off. They operate on low-profit margins, and so interrupted service can be a real disaster.

There are also special opportunities for small business in the energy area. We see energy efficiency and micropower as particularly attractive for small businesses. Small businesses are, by nature, decentralized. Micropower technologies, like the solar water heater I mentioned, are decentralized technologies. Micropower fits small business like a glove.

The big issue I think that needs to be addressed, is this: We don't know how much energy small business as a whole consumes,

but it has got to be vast. There was one study by E SOURCE done in 1997 that concluded that more than half of all commercial energy in North America was used by small businesses, but that doesn't include small business manufacturers, and as you may know, 85 percent of the membership of the National Association of Manufacturers are small and medium businesses. So small manufacturers have got to be significant users of energy, although nobody, so far as we know, has estimated the total amount used.

What about energy use by home-based businesses? Approximately 12 million Americans are now operating businesses out of homes, basements and garages.

The flip side of this immense energy consumption of small business is its potential for energy efficiency, and lower energy consumption means lower bills. So there is a big motivation for small businesses to become energy efficient.

Small business energy upgrades pay for themselves over time, and can be put into effect quickly. It doesn't take 2 or 3 years to upgrade a small business. It can be done virtually overnight with very simple technologies, such as improved lighting, better thermostats, occupancy sensors in bathrooms, offices, and storerooms. These things can save small business a lot of money. One energy efficient exit sign can save $20 a year, and most small businesses, of course, have more than one.

Finally, reduced energy use by small businesses would prevent the release of millions of tons of carbon dioxide into the atmosphere. This would also reduce air pollution from power plants and conserve natural resources.

As you pointed out, small businesses are the heart and soul of every American community and they need reliable and affordable energy supplies to keep their doors open. But just as important, small business people need a clean and healthy environment in which to live and work. Unlike big businesses, small businesses cannot leave town whenever they feel like it. The plant cannot be closed and moved elsewhere. Small business people are part and parcel of local communities where they breathe the air, drink the water, and raise their children. Thank you.

Chairman KERRY. Thank you very much, Mr. Kennard.

[The prepared statement of Mr. Kennard follows:]

Byron Kennard, Executive Director
The Center for Small Business and the Environment

Testimony before U.S. Senate Committee on Small Business and Entrepreneurship
July 26, 2001

Good morning. Thank you, Senator Kerry, for convening this important and timely hearing. I thank the Committee for allowing me the opportunity to testify. My name is Byron Kennard. I am Executive Director of the Center for Small Business and the Environment located here in Washington, DC.

The Center for Small Business and the Environment was founded in the belief that the best solutions to environmental problems are often achieved through innovations that increase efficiency and resource productivity. Traditionally, most such innovations are created by entrepreneurial small businesses. This fortuitous connection provides, we think, ample basis for a collaboration that profits small business and helps protect the environment.

Small businesses are not only the *primary source* of environmentally benign innovations; often, they are the *principal beneficiaries*. For example, presently available, cost competitive solar water heaters can dramatically cut the utility bill of, say, a cafeteria or laundry or of any small business that uses a lot of hot water. Now, chances are, these water heaters, were conceived and designed by a small business innovator, produced by a small manufacturer, and marketed by a small business. Then, to complete the cycle, it's also likely that such water heaters will be installed and serviced by other small businesses.

I hope this example conveys some idea of the broad and deep involvement of small business in energy issues. This brings me to the President's National Energy Plan (NEP). We think a national energy plan is badly needed. Indeed, if they are to survive, small businesses *must* have reliable and affordable energy supplies. That's why we're urging the Administration to add a focus on small business to the National Energy Plan, something it does not at present contain.

Overlooking small business in policy deliberations is typical, we've found, especially when it comes to environmental and energy issues. But I certainly don't mean to single out the White House energy planners for criticism. Virtually none of the groups we hope to influence -- media, public officials and government agencies, environmental organizations -- seem aware that small business now makes up *one-half of the economy*. Today, 51 percent of the private gross domestic product comes from small business. Forty-seven percent of all sales in the country are by small businesses. Fifty-three percent of the private non-farm workforce is employed by small business. These statistics describe an economic colossus. Why don't people know it exists?

Big businesses are highly visible because they are *big,* but small businesses, being *small*, are largely invisible. That's why people don't see that many of the components and services that are integrated, packaged and delivered by *big* businesses now often come from *small* businesses. If you buy, for example, an automobile manufactured by GM or Ford, you're actually buying a product assembled from thousands of small business suppliers.

That's the way the economy works these days. Corporate downsizing in the1990's, for example, transferred many functions formerly performed (often inefficiently) by big businesses to (more efficient) small business contractors. This helps explain how small business has become an economic colossus.

How much energy does this colossus consume as a whole? So far as we can discern, *nobody knows*. The basic research simply hasn't been done. Here's what we do know. It's widely accepted that (apart from transportation) one-third of all energy consumption is commercial, one-third industrial, and one-third residential. America's 23 million small businesses are so ubiquitous and diverse that they occupy a big chunk of all three categories.

Commercial. A recent research report by E SOURCE titled *The Forgotten Majority: Small Business, Hidden Opportunities* asserts that small businesses now account for *more than half* of all commercial energy consumption in North America.

Manufacturing. No report comparable to E SOURCE's research has been done on small business manufacturing, but this use can't be insignificant. About 85 percent of U.S. manufactured goods are produced by the 14,000 member companies of the National Association of Manufacturers (NAM). About 10,000 companies -- 85 percent of NAM's membership -- are small and medium-sized firms. And what about high tech companies? Three-quarters of all such firms have fewer than 20 employees.

Residential. In 1998, the US Commerce Department reported that more than one-half of US small businesses is home based. That means that something like ten million small businesses are now being run out of home offices, basement workshops and garages. And home-managed businesses are the fastest-growing segment of the U.S. economy, with an annual growth rate of 10%.

This information sketchy, I admit, but it's the best we've been able to find because no one is tracking energy use by small business. So we ask: *how can we make energy policy when we don't know much about how one-half of the economy uses energy?* Some basic research must first be done.

Second, we must look at the special energy needs and opportunities of small business. For example, small business is, by definition, decentralized. Thus, decentralized micropower technologies -- a solar water heater, for instance -- fit small business like a glove. This fit should be explored as a vital energy option.

Then there's the tremendous potential of small business to achieve and benefit from energy efficiency. That's the flip side of its huge energy consumption. This potential can and should be mined. Here are a few low-risk/high-return technologies that small businesses should routinely install:

- Compact fluorescent lamps to replace incandescent lamps;
- Setback or programmable thermostats for heating/air-conditioning;
- LED (light emitting diode) exit signs;
- Motion sensors to automatically turn lights off/on.

Small businesses should also change HVAC filters monthly, insulate the first three feet of hot water pipe from the water heater, and schedule HVAC tune-ups to ensure that the system is performing at optimum efficiency. Off-the-shelf technologies are now available to provide energy when brownouts occur and also a hedge against even higher energy prices. For example, solar electric systems (photovoltaics) are now commonly used by small firms to produce mid-day electricity or add "on time" to existing battery back-up systems.

I should emphasize that small businesses can profit greatly from saving energy. Lower energy consumption means lower bills. So small business efficiency upgrades pay for themselves over time. Overall, small businesses could save billions of dollars every year.

Here are some other major benefits we can expect from small business energy solutions:

Fast turnaround. Small business energy efficiency upgrades can be put into effect quickly. Basically, they involve doing the same simple thing over and over again in lots and lots of places. Restaurants, for example, are highly intensive users of energy. They can make a big dent in energy demand just by using window film to reduce summer heat, and by installing improved lighting, better thermostats and occupancy sensors in bathrooms, offices and storerooms. Just *one* energy efficient exit sign can save about $20 annually in electricity costs, compared to typical, incandescent signs.

New employment. Small business energy solutions will create many new jobs. That's because decentralized, small-scale solutions tend to be labor-intensive. For example, at any given time, 90 percent of all air conditioners in America need a tune-up. (Here again, simple steps -- identifying duct leaks, checking airflow and refrigerant charge, cleaning coils and changing filters -- will work wonders, reducing energy use up to 40%!) Who performs these tune-ups? Small business people with a pick-up truck or a van, operating out of home offices or workshops located in basements or garages.

Environmental Benefits. Small business energy efficiency helps the environment too. Reduced energy use by small businesses will prevent the release of million of tons of carbon dioxide into the atmosphere.

Small businesses are the heart and soul of every American community, and they need reliable and affordable energy supplies in order to keep their doors open. But, just as important, small business people need a clean and healthy environment in which to live and work. Unlike big businesses, small businesses cannot leave town whenever they feel like it. The 'plant' cannot be closed and moved elsewhere. So small business people are part and parcel of local communities, where they breathe the air, drink the water, and raise their children.

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Chairman KERRY. Mr. Dreessen.

STATEMENT OF THOMAS DREESSEN, CHIEF EXECUTIVE OFFICER, EPS CAPITAL CORPORATION, DOYLESTOWN, PENNSYLVANIA, ON BEHALF OF THE EXPORT COUNCIL FOR ENERGY EFFICIENCY, WASHINGTON, D.C.

Mr. DREESSEN. Mr. Chairman and Members of the Committee, thank you for the opportunity to testify before you today regarding opportunities for small business and the impact of environmental regulations. I am Tom Dreessen, a small business entrepreneur who owns several energy service companies called ESCOs that operate both domestically and internationally.

The ESCO industry is very unique in that it is mostly made up of entrepreneurs like me that develop, finance, and implement energy efficiency projects of all technologies and we risk repayment for our services based on actual achievement of savings. We are essentially performance contractors that deliver actual measured emissions reductions through measured energy savings on the projects that we implement.

Our business model is a win-win proposition for the business owners themselves by getting savings and for the ESCO community and for all of the small contractors and service providers and product manufacturers that we use in our projects, because our projects are paid from savings, so it is a win-win strategy for the end-use customer, as well. So we deliver these emissions and environmental benefits at no cost to the public at all. It comes right out of the projects and the savings and the costs that they were already paying to the utility providers in most cases.

I am or have been a board member on three of the five founding organizations of the Export Council for Energy Efficiency, called ECEE, and consequently, I appear before you today wearing three hats: First, as a small business entrepreneur; second, as a representative of the U.S. ESCO industry; and third, as a spokesman for ECEE. So it is quite a charge that I have today, but my comments will consequently cover both domestic and international issues because of that experience.

Given the very limited time, I cannot appropriately cover the merits of energy efficiency, but I hope all the Committee Members recognize and embrace its many domestic and international benefits. Three of those major benefits are environmental, economic, and a source of electric capacity.

From an environmental perspective, energy efficiency reduces the demand for burning fossil fuels, which conserves the nonrenewable resources of oil, coal, and natural gas, and thus dramatically reduces greenhouse gas emissions and air pollution, resulting in cleaner air, water, and lower social welfare costs.

Economically speaking, the simple fact is that energy efficiency results in reduced energy costs to consumers, like small businesses, allowing them to not only repay the investment to achieve the energy efficiency, but also to have lower operating costs to better compete in a world economy.

As a source of electric capacity, energy efficiency, studies have shown, if properly funded, has the potential to displace up to 130,000 megawatts of domestic electric capacity by the year 2020,

which represents about one-third of the amount of increase that will be needed by that time, and at a benefit of getting this additional electricity through efficiency versus through new generation is that it provides less reliance on foreign sources and an increase to national security.

Mr. Chairman and Members of the Committee, it is important to note that ESCOs and similar companies like ESCOs that develop, finance, and implement energy efficiency projects and technologies are predominately small contractors and consultants from the highly skilled engineering and financing industry. Therefore, as a representative of this small industry, I feel it is appropriate for me to offer the following two recommendations for your consideration today.

On the domestic front in the United States, I recommend that a Federal environmental incentive payment be provided to energy consumers, including small businesses, who implement energy efficiency that achieves measured reductions of energy savings. Incentive payments should be based on the actual measured energy units reduced from energy efficiency measures installed. A possible implementation mechanism for funding the incentive payments could be a Federal public benefits fund, which I strongly support, with the environmental payment being included as one of its uses of proceeds. Small energy efficiency businesses would be able to use this incentive payment to stimulate energy efficient investment and promote the related environmental benefits as offsets against environmental regulation and compliance. Thusly, environmental regulations serve as an incentive for energy consumers to achieve savings and reduce emissions to achieve compliance.

On the international front, given the economic and environmental benefits, along with the insatiable demand for U.S. energy efficiency technologies overseas, it is recommended that a minimum of $100 million be funded over the next 3 years for use by small energy efficiency companies like ESCOs and other energy companies to develop, finance, and implement energy efficiency projects in the international markets. The funding could be provided through ECEE, which has provided market access for many small companies to large emerging markets, such as China, Brazil, India, and Mexico, but we certainly want to stress the fact of keeping the administrative requirements down and actually getting that market access to the marketplace.

A second recommendation, a more immediate need is to restore ECEE's $1 million operating budget for next year, which after six successful years of operation was eliminated by DOE in its fiscal year 2002 budget. They work predominately for small businesses in foreign governments of our competitors in Japan and Europe. They spend far more than the United States in supporting the development efforts of their local small energy efficiency businesses in foreign markets. I have had direct access and tried to compete against them, and it is unbelievable, the amount of monies that are funneled to them through their governments, the small efficiency companies. This makes the need for Federal funding to small U.S. energy efficiency companies of higher importance to the vitality of our economy and, indeed, the world.

In summary, providing new financial support for energy efficiency improves the environment, increases national security for reducing reliance on imports of scarce resources while increasing high-skilled jobs, social welfare, and economic growth both domestically and internationally. Thank you for the opportunity to testify today and I am happy to address any questions that you may have.

Chairman KERRY. Thank you very much, Mr. Dreessen. Very interesting. I know we will want to follow up on it a little bit.

[The prepared statement of Mr. Dreessen follows:]

TESTIMONY FOR SENATE SMALL BUSINESS AND ENTREPRENEURSHIP COMMITTEE HEARING ON 'THE BUSINESS OF ENVIRONMENTAL TECHNOLOGY'
BY
THOMAS A. DREESSEN, CEO
EPS CAPITAL CORPORATION
August 1, 2001

Mr. Chairman and Members of the Committee, thank you for the opportunity to testify before you today regarding opportunities for small business and the impact of environmental regulations. I am Tom Dreessen, a "Small Business Entrepreneur" who owns several energy services companies (called "ESCOs") that operate both domestically and internationally. As noted, I am the Chairman and CEO of EPS Capital Corporation, an ESCO that develops, finances and implements energy savings and supply projects on a guaranteed savings basis for industrial companies in the U.S. and abroad. Domestically, I am the CEO of Crothall Asset Management Inc., an ESCO that develops and implements energy savings projects and acquires central energy supply plants in Hospitals throughout the U.S. Internationally, I am a principal owner of three local ESCOs that operate in Canada, India and Thailand.

I am or have been a Board member on three of the five founding organizations of the Export Council for Energy Efficiency (ECEE) formed under the Committee on Energy Efficiency Commerce and Trade (COEECT). Signed into law by the first President Bush in 1992, COEECT is 15 federal agencies designed to promote US ee product & services abroad. Currently, I serve on the Boards of the National Association of Energy Service Companies (NAESCO) and the Alliance to Save Energy, and I served many years on the Board of the National Association of State Energy Officials (NASEO). I am also a past President of the NAESCO and am the current Chairman of its International Committee. I appear before you today wearing three hats: i) as a small business entrepreneur, ii) as a representative of the U.S. ESCO industry, and iii) as a spokesman for ECEE to advise the Federal government on ways to increase the export of U.S. energy efficiency products and services. As such, my comments today will cover both domestic and international recommendations.

Given the very limited time, I cannot appropriately cover the merits of energy efficiency, but I hope all of the Committee Members recognize and embrace its many domestic and international benefits. Three of the major benefits of energy efficiency are:

1. **Environmental**: Energy Efficiency reduces the demand for burning fossil fuels which conserves the non-renewable resources of oil, coal and natural gas, and thus dramatically reduces greenhouse gas emissions and air pollution, resulting in cleaner air, water and lower social welfare costs.

2. **Economic**: The simple fact is that energy efficiency results in reduced energy costs to consumers like small businesses allowing them to not only repay the investment to achieve the energy efficiency, but also to have lower operating costs to better compete in a world economy.

3. **Source of Electric Capacity**: Energy efficiency, if properly funded, has the potential to displace up to 130,000 MW of domestic electric capacity by the year 2020 - nearly 1/3 of

needed capacity increases by 2020 as estimated by the Energy Information Administration, resulting in less reliance on foreign sources and an increase in national security.

Mr. Chairman and Members of the Committee, it is important to note that ESCOs and similar companies that develop, finance and implement energy efficiency projects and technologies are predominantly small contractors and consultants from the highly-skilled engineering industry. Therefore, as a representative of this small business industry, I feel it is appropriate for me to offer the following two recommendations for your consideration today:

1. **In the U.S., I recommend that a federal environmental incentive payment be provided to energy consumers (like small businesses) who implement energy efficiency measures that achieve measured reductions of energy usage.** Incentive payments should be based on the actual "measured" BTUs reduced from the efficiency measures installed. A possible implementation mechanism for funding the incentive payments could be a federal public benefits fund, which I strongly support, with a 'use of proceeds' stipulation as incentive for investment in the implementation of energy efficiency. Small energy efficiency businesses like ESCOs would be able to use these incentive payments to stimulate energy efficiency and promote the related environmental benefits as offsets against environmental regulation compliance. Therefore, environmental regulations serve as an incentive for energy consumers to achieve savings and reduce emissions to achieve compliance.

2. **On the international front**, a former Administrator for the SBA recently said "Over the last six years, exports of U.S. goods and service have accounted for 70% of the growth of our economy. One of the most dynamic sources of this growth has been the small business community.....". However, according to the SBA, only 1% of all small businesses currently export their products or services. Given the economic and environmental benefits along with the insatiable demand for U.S. energy efficiency technologies overseas, it is **recommended that a minimum of $100 million be funded over the next three years for use by small energy efficiency companies like ESCOs to develop, finance and implement energy efficiency projects in international markets.** The funding could be provided through ECEE, which has provided market access for many small companies to large emerging markets such as China, Brazil, India, and Mexico, which *have the fastest growing market potentials for small business exporters. **A second and more important recommendation is the immediate need to restore ECEE's $1 million operating budget for next year**, which after six successful years of operation, was eliminated by DOE in its FY2002 budget. Foreign governments of our competitors in Japan and Europe spend far more than the U.S. in supporting the development efforts of their local energy efficiency businesses in foreign markets, which makes the need for federal funding to small U.S. energy efficiency companies of even higher importance to the vitality of our economy, and indeed the world.

In summary, providing new financial support for energy efficiency improves the environment, increases national security by reducing reliance on imports of scarce resources while increasing high-skilled jobs, social welfare and economic growth domestically and internationally. Thank you for the opportunity to testify today and I am happy to address any questions you might have.

Chairman KERRY. Mr. Patterson.

STATEMENT OF ED PATTERSON, PRESIDENT, NATURAL ENVIRONMENTAL SOLUTIONS, INC., ST. LOUIS, MISSOURI

Mr. PATTERSON. Good morning, Senator Kerry. I thank you and Senator Bond for giving me the opportunity to express my views today.

Natural Environmental Solutions is a year-old biotech company based in St. Louis, Missouri, with four employees. We recently participated in Missouri's first roundtable meeting to develop initiatives to further our State's ability to help attract and grow biotech companies. NES is an environmentally-friendly company dedicated to solving our air pollution problems.

We manufacture a product that is derived from seaweed and other sea plants. It is nontoxic, biodegradable, and safe for human and animal alike. We utilize genetically-coated microcell technology to clean the air, water, and land. The applications for this product grow daily as we talk to members of other industries.

Because this product is not a masking agent, but removes the hydrocarbons and gasses from the air, we took the next step and tested it for the removal of VOCs within Performance Roof Systems, Incorporated, an asphalt manufacturing company located in Kansas City, Missouri. Like companies from other industries, they gather volatile organic compounds from the manufacturing line and incinerate them utilizing natural gas. Although this process is effective, it is extremely costly and increases our national consumption of natural gas.

We tested our material by spraying it directly on the VOCs within the exhaust stack and turned off the incinerators. Our results, conducted by an independent lab in Columbus, Ohio, confirmed that we exceeded the EPA guidelines for clean air within the roofing industry by removing 90 percent of the VOCs. This one small plant could heat 1,000 homes per year with the gas saved and decrease the VOC removal cost by 50 percent. There are 200 plants within the United States in this industry alone. The asphalt roofing industry uses $80 million worth of gas per year.

As a small business, we would like to bring this environmentally friendly product to market. The testing required and red tape associated with dealing with regulatory agencies are two of our biggest obstacles. As with any new technology, we have found the first obstacle is to change the mindset of the scientific community. Each corporation we talk with has an environmental engineer who has never heard of our technology and frequently is extremely doubtful. They all demand testing and expect our firm to pay for it. As with anything new, you have some people willing to test immediately and others who prefer to take a wait and see approach. These companies all fear of being shut down for noncompliance of permits, even though our results meet the standards.

Although Missouri has attracted $22 million of venture capital funds, they will not look at a product like ours because it does not have a patent. The inventor of this process will not file a patent because he does not want to disclose the process for making it work. This process took 18 years to develop and we feel confident it cannot be cross-engineered.

We need to have alternate funding for companies that fall in a gap from conventional methods of financing. Whether by Federal or State grants, guaranteed bank loans, tax credits, or all of the above, we need help financing our testing. We also need to have incentives in place to help companies subsidize the cost of changing their manufacturing equipment to utilize new technology instead of using natural gas.

Performance Roof Systems, Incorporated, is ISO–9000 certified and must follow Chapter 643 within the air law of Missouri. To change to another source, you have to obtain a construction trial permit, and their red tape to do so is quite expensive. Simply put, we need to obtain an operating permit exemption to further test our system and we have not been able to find out how to do this through city or State offices. We make calls to explore our options, but no one calls us back. Our goal is to be put on the EPA's recommended product list and we need help to do so.

We are excited to promote life sciences within Missouri because St. Louis, Kansas City, and rural areas all prosper by promoting this industry. By utilizing our technology, the environmentalists achieve their goals of clean air. Manufacturing companies reduce their costs and America will drastically reduce consumption of natural gas. Everyone wins.

Our products remove VOCs and carbon dioxide from the air by engulfing it within microcells. Scientists around the world are concerned about the CO_2 gasses in the upper atmosphere changing weather conditions. We feel we have the technology to eliminate these gasses from the air and rectify these problems, but we need funds for testing in order to prove it will work.

I am enclosing a letter from the president of Performance Roof Systems, who is a board member for the Roofing Manufacturers Association, with his concerns.* We agree with Senator Bond that we need a bipartisan approach to develop or bring to market technology needed to overcome the environmental challenge of the next century. Thank you for your time today.

Chairman KERRY. Thank you very much, Mr. Patterson.

[The prepared statement of Mr. Patterson follows:]

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*See letter on page 58.

NATURAL ENVIRONMENTAL SOLUTIONS, INC.

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12511 Villa Hill
Saint Louis, Missouri 63141

August 1, 2001

Good Morning Senators I thank you and Senator Bond specifically for giving me the opportunity to express my views today.

Natural Environmental Solutions is a year old bio-tech company based in St. Louis, Missouri with four employees. We recently participated in Missouri's first Roundtable Meeting to develop initiatives to further our states ability to help attract and grow bio-tech companies. The participants of this meeting included small and large business from the private sector, academic staff from private and state universities, military and medical personnel. We came together from all parts of Missouri to help plan the Life Science Strategies for the future. With 1,250 Life Science firms we contribute 12% of the gross profit to our state. We believe that number will jump drastically in the future if the right strategies are put in place and implemented correctly. We also addressed the needs of small business and were told that the Governor will be allocating $22,000,000.00 collected from the Tobacco Settlement to help our industry.

N.E.S. is a environmental friendly company dedicated to solving our air pollution problems. We manufacturer a product that is derived from seaweed and other sea plants. It is non-toxic, biodegradable and safe for human and animal alike. We utilize genetically coded micro-cell technology to clear the air, water and land. The applications for this product grow daily as we talk to members of other industries. Sea World in Tampa, Florida has used this product for the past year with outstanding results. Because this product is not a masking agent but removes the hydra-carbons and gases from the air we took the next step and tested it for the removal of V.O.C.'s within Performance Roof Systems, Inc. a asphalt manufacturing company located in Kansas City, Missouri. Like companies from other industries they gather volatile organic compounds from their manufacturing line and

incinerate them utilizing natural gas. Although this process is effective it is extremely costly and increases our national consumption of natural gas. We tested our material by spraying it directly on the V.O.C.'s within the exhaust stacks and turned off the incinerators. Our results conducted by a independent lab in Columbus, Ohio confirmed that we exceeded the E.P.A. guidelines for clean air within the Roofing Industry by removing 90% of the V.O.C.'s. This one small plant could heat 1000 homes per year with the gas saved and decrease their V.O.C. removal cost by 50%. There are 200 plants within the United States in this Industry alone. The Asphalt Roofing Industry uses $80,000,000.00 worth of gas per year.

As a small business we would like to bring this environmental friendly product to market. The testing required and red tape associated with dealing with the regulatory agencies are two of our biggest obstacles. As with any new technology we have found the first obstacle is to change the mindset of the scientific community. Each corporation we talk with has a environmental engineer who has never heard of our technology and frequently is extremely doubtful. They all demand testing and expect our firm to pay for it. As with anything new you will have some people willing to test immediately and others who prefer to take a wait and see approach. These companies all fear being shut down for noncompliance of permits even though our results meet the standards.

Tamko, a roofing manufacturing plant in Joplin, Missouri is willing to set up testing and they estimate it will cost $30,000. Fortunately because of previous testing they already have the instrumentation in place, unfortunately they expect our firm to pay for the independent testing.

Although Missouri has attracted $22,000,000.00 in venture capital funds they will not look at a product like ours because it does not have a patent. The inventor of this process will not file for a patent because he does not want to disclose the process for making it work. This process took 18 years to develop and we feel confident it can not be cross-engineered. We need to have alternate funding for companies who fall in a gap from conventional methods of financing. Whether by Federal and State Grants, Guaranteed Bank Loans, Tax Credits or all

of the above, we need help financing our testing. We also need to have incentives in place to help companies subsidize the cost of changing their manufacturing equipment to utilize new technology and instead of using natural gas. Performance Roof Systems, Inc. is ISO 9000 Certified and must follow Chapter 643 within the air law of Missouri. To change to another source you have to obtain a construction trial permit and the red tape to do so is quite extensive. Simply put we need to obtain a operating permit exemption to further test our system and we have not been able to find out how to do this through the city or state offices. We make calls to explore our options but no one calls us back. Our goal is to be put on the EPA's recommended product list and we need help to do so.

We are excited to promote Life Sciences within Missouri because St. Louis, Kansas City and Rural areas all prosper by promoting this Industry. By utilizing our technology Environmentalists achieve their goals of clean air, Manufacturing Companies reduce their costs and America will drastically reduce consumption of natural gas, everyone wins.

Our product removes V.O.C.'s and Carbon Dioxide from the air by engulfing it within our micro-cells. Scientists around the world are concerned about the CO2 gases in the upper atmosphere changing weather conditions. We feel we have the technology to eliminate these gases from the air and rectify these problems, but we need funds for testing in order to prove it will work.

I am enclosing a letter from the President of Performance Roof Systems (who is a Board Member for the Roofing Manufacturers Association) with his concerns. We agree with Senator Bond that we need a bipartisan approach to develop and bring to market the technology needed to overcome the environmental challenges of the next Century. Thank you all for your time today.

Sincerely,

Ed Patterson
President
Natural Environmental Solutions, Inc.

7/16/01

PERFORMANCE
ROOF SYSTEMS

E. C. Patterson, Jr.
National Environmental Products
12511 Villa Hill
Saint Louis, MO 63141

Dear Mr. Patterson,

We are very excited about the next phases of our qualification process with your fume control process. The initial trials have been very promising. We are anxious to continue.

As we discussed, the next phase will require us to make changes in our current fume control system. We currently incinerate our fumes and utilize the incineration equipment to heat our internal hot oil system. Our expenses for natural gas have skyrocketed and we would like to change over to your system if the full-scale trials are successful.

As we discussed, our problem is the "red tape" necessary to actually shut down our current system and trial your system on an extended basis to see if it works. We are continuing to work with the City of Kansas City, MO, to gain an approval to try the new system.

Our other issue is cost. These trials and the necessary equipment changes are very costly to us. If you have any way to help us with these expenses it would speed up the process. I am most anxious to continue this project. Please let me know if there is any way we can help.

Sincerely,

D. G. Perkins
President

PERFORMANCE ROOF SYSTEMS, INC. • 4831 CHELSEA AVE. • KANSAS CITY, MO 64130-2881 • (800) 727-9872 • (816) 921-5540 (FAX)

Chairman KERRY. I thank all the witnesses for keeping their testimonies to the time. It affords us an opportunity to have a dialog and that is very helpful.

Senator Snowe, would you like to make any comment before we proceed to questions?

Senator SNOWE. No, that is fine, thank you. I do have a statement.

Chairman KERRY. Your statement will be placed in the record as if placed in full.

Senator SNOWE. Thank you.

[The prepared statement of Senator Snowe follows:]

STATEMENT FOR HEARING
Senator Olympia J. Snowe
August 1, 2001

I thank the Chair for scheduling a hearing on the issue of environmental technology.

I believe this is an ideal opportunity to focus on the efforts of the small business community to help address the larger energy challenges facing our nation by developing energy efficient technologies and technologies that have the potential to help enhance environmental compliance nationally.

As we enter the new millennium, energy efficiency and renewable energy incentives for developing technologies will play an increasingly critical role, helping energy consumers save money, making businesses more competitive, improving air quality and public health, and managing greenhouse gas emissions causing climate change. These technologies contribute to economic prosperity and quality of life in two fundamental ways: by increasing the energy efficiency of the devices, processes, and systems that use energy, and by increasing the supplies of clean energy resources. We need to identify what the appropriate incentives that, in particular, can help small businesses be as much a part of these success stories as possible.

Obviously, the energy debate is one of the central issues before Congress this year. The rise in the price of gasoline, home heating oil, and natural gas, and the challenges facing California have put this issue front and center on the congressional agenda. The President has outlined an energy proposal and the Congress is very much focused on this issue as well. This issue is among my highest priorities.

Let there be no mistake, Mr. Chairman, small businesses are making enormous contributions to this challenge. The majority of businesses nationwide are small businesses. They not only depend on plentiful energy to keep their businesses running and growing, which in turns keeps our economy going, but they have also helped lay the foundation for energy conservation through development of energy-efficient technologies. I believe this will be a significant part of the solution to our over-all energy challenge in this country.

Mr. Chairman, I believe the foundation of this effort is innovation, and small businesses are incredibly innovative. And this Committee has worked hard to facilitate small business innovation. In fact, just last week, the Committee voted to approve legislation to reauthorize the Small Business Technology Transfer (STTR) program.

The goal of the STTR program is to expand innovation research and development by small businesses. The foundation of the program is what I consider to be a brilliant concept, whereby funding is provided to support small business partnerships with nonprofit research institutions in order to meet our country's scientific and technological challenges. The STTR program sets aside a specific percentage of federal agency research and development funding for this purpose. During the first five years of the program, small businesses received 1,540 awards totaling over $164,000.

I am a strong believer in programs like STTR because I believe that much of the innovation taking place in this country today is taking place in small firms. The STTR program supports the work of small businesses and research institutions to take new concepts from startup, through development, and commercialization.

The Manufacturing Extension Partnership Program for could also be a piece of the larger picture for small businesses. The MEP provides direct assistance to small and medium manufacturers on a variety of business and technical issues. Supporting the implementation of new "green", environmentally friendly manufacturing technologies and techniques through the MEP outreach network could give a huge lift to hundreds of thousands of small manufacturers.

Of course, the focus of the hearing today is on the link between small businesses, environmental protection, and economic growth in general. I look forward to hearing the testimony of our witnesses because I strongly believe that these issues are inextricably linked. Today's small businesses must compete in a competitive global marketplace, while at the same time, complying with a range of rules and regulations designed to protect the environment. Today's hearing is a perfect opportunity to highlight the important role that small businesses play in developing ever more innovative ways to help businesses -- large and small -- contribute to the goal of safeguarding the our precious environment.

In closing, Mr. Chairman, let me say that as we enter a new millennium, I

believe that energy efficiency and renewable energy technologies should play an increasingly important role, helping consumers save money, making small businesses more competitive, improving air quality and public health, and reducing greenhouse gas emissions, the major cause of climate change according to the majority of scientific experts..

These technologies contribute to economic prosperity and quality of life by increasing the energy efficiency of the devices, processes, and systems that use energy, and by increasing the supplies of clean energy resources. Energy generation accounts for over a third of air pollution and greenhouse gas emissions in the U.S. More energy efficient generation technologies and use of renewable fuels are keys to a sustainable energy future.

So, again, I thank the Chair, and I look forward to hearing the testimony of our witnesses.

Chairman KERRY. Mr. Patterson, let me just follow up quickly, simply because your testimony was last, with respect to a number of questions. First of all, your product is tested very well, but nevertheless, you have not been able to attract financing, et cetera. Do you need more tests notwithstanding that you have exceeded the EPA's guidelines?

Mr. PATTERSON. Yes.

Chairman KERRY. Why is that?

Mr. PATTERSON. Well, for instance, while we did independent testing and we exceeded the EPA guidelines, you need to get permits in Missouri to begin trials in other facilities. For instance, there is a roofing manufacturer called Tamko in Joplin, Missouri. I have contacted them. They have heard about our testing. They would like to have us test it and they have the instrumentation in place to do it, but it is going to cost $30,000 to have this independent testing done and they expect us to pay for it.

Chairman KERRY. Well, let me ask you this. Obviously, testing and meeting public approval standards is a component of R&D. It is a component of product development.

Mr. PATTERSON. Correct.

Chairman KERRY. You have not sought R&D capital, is that correct?

Mr. PATTERSON. Well, we are trying to pursue that at this time.

Chairman KERRY. Have you been in touch with the SBA itself?

Mr. PATTERSON. Yes. I am actually trying to look for SBIR loans. Quite frankly, that is a very lengthy process that we are just getting involved in.

Chairman KERRY. Several of you, in each of your answers, have sort of articulated a sense of frustration, if not indirectly at least implicitly, but I think it is pretty direct, in the process. The process is annoying to you. I think several of you have articulated that the red tape somehow gets in the way. Part of the purpose of these hearings is for this Committee to be able to start to think about if there is a more appropriate balance and what we might be able to do to try to eliminate some of the red tape and facilitate the process.

I have heard from companies all across the country that part of the problem in bringing new energy efficient products to market is the regulatory process. Now, when you get specific, you run up against the hurdle, obviously, of trying to guarantee that you are still protecting the public adequately, which is our responsibility also, and balancing it with the need to move more rapidly and be more user friendly.

Can you give us, each of you or any of you, some thoughts about places where very quickly that could be done. For instance, I think it was you, Mr. Bedogne, who suggested the boilerplate contract. I mean, that is a fast way, obviously, and I would think a sensible way, to be able to, in certain size of deals, move the process more rapidly.

I think each of us here hates bureaucracy. I mean, bureaucracy is the enemy of everybody. It doesn't have a party label on it. It is a terrible problem and we would love to facilitate a solution. So could you deal with that a little bit in each context? Mr. Patterson first.

Mr. PATTERSON. Well, I would think that if you can go to your regional EPA office, whatever region you are in, and submit, quite frankly, independent testing that proves that you meet the guidelines, that there should be some sort of way to quicken the process.

Chairman KERRY. You are saying the testing you are being required to do is duplicative?

Mr. PATTERSON. Basically, it is duplicative because the companies themselves are being afraid to be shut down for noncompliance of permits as well as the results. I have talked to the State's Attorney General's office and their feeling was, if you meet the guidelines, that they will not prosecute, period. So we are not so much in fear of being prosecuted by them, but if you don't have the right permits in place, EPA can shut down any of these plants, and that is their biggest fear.

Chairman KERRY. So you think the permitting process itself needs to be facilitated?

Mr. PATTERSON. Streamlined, absolutely, and especially for a process like this, where we have the owner of this company in the roofing market per se saying, we would like to use this product because we are going to save 50 percent on our gas costs. So we are meeting all the guidelines it seems like everybody wants.

Chairman KERRY. I understand. Mr. Dreessen, do you want to address that?

Mr. DREESSEN. It is a little difficult for me because the proposals that I am making are fairly new and there are no existing programs. There is a lot of funding being provided for international efforts, and what I try to do—one of the things I am interested in in that $100 million is to remove barriers for U.S. energy service companies to get U.S. technologies and products into the marketplace, and there are a lot of barriers out there and the major one is project financing. There is a lot of it. We have got Ex-Im Bank, we have got a lot of agencies, U.S. agencies that are out there doing that. The unfortunate thing is, they are not structured to meet the needs to where any energy efficiency companies can access it.

Chairman KERRY. I am very interested to hear you say that because earlier this year, in the end of January, I made a proposal that we should create a trading partner/environmental development fund which the key developed countries ought to be making available. I believe this serves several purposes.

First, it would help build the consensus for the benefits on the upside of the trading regime that we are working under, which is frayed, at least at the edges now, if not more seriously. That would help us to deal with both the environmental and then, subsequently, the labor component here at home.

Second, it advances the interests of all of our small businesses and all of our technologies in the country by helping to put them out into the marketplace in an aggressive way.

Third, obviously, the final benefit is that less developed countries then are participating within the global climate change and other kinds of environmental concerns we have, and in a positive way that helps to satisfy demand here. So I think it is a win-win-win and it obviously is very much similar to what you are recommending today.

Mr. DREESSEN. Exactly. One of the fundamental issues, if it could ever be changed, is almost all of our funding mechanisms that we have in the United States as far as financing require that repayment is made in hard currency. For those of you who don't understand, that is a huge barrier in doing anything in a developing country where then that exposes them to the devaluation of the local currency. It is a huge barrier. It really makes the financing not even available. They are not even interested in it.

Chairman KERRY. Let me interrupt the flow of questions, if I can, for a moment. Senator Bond has to go to another markup and I want him to be able to welcome and say a few words about the next panel, even though it will be a few moments before they come up.

Senator Bond.

Senator BOND. Thank you very much, Mr. Chairman. I really appreciate the chance. I was going to very briefly say how much we appreciate Mr. Stolpman from EPA and Mr. Renberg from the Ex-Im Bank. I know they have a great deal to do, and some of the international aspects that Mr. Dreessen was talking about will be addressed there.

I have just mentioned some of the things that EPA is doing in Missouri on the thermal depolymerization. I spent all weekend trying to learn how to say that. I gave it a shot. If you ever hear of it again, remember, you heard it here first. But we appreciate the small business witnesses and the government witnesses. I will have some questions for the governmental witnesses that I will probably have to submit for the record. I would rather have them offer their questions first.

But let me turn in questions first to Mr. Patterson. You talked about the regulatory burdens, and we are trying to work with you to help. Do you have any suggestions in what you have seen of how EPA or the State Department of Natural Resources could be of more assistance to businesses like yours to identify and overcome the regulatory hurdles?

Mr. PATTERSON. I would think that the permit process could possibly be streamlined, No. 1.

No. 2, within the State of Missouri, it seems that when you start talking about trying to change anything regarding the air and the air pollution, they are very hesitant to look at any new technology or change anything, period. It is almost as though they are afraid to change. So I guess I would like them to be a little bit more open minded.

Senator BOND. All right. Mr. Bentley, you mentioned regulatory barriers. When I came in, you were talking about how the regulatory hurdles are a significant hindrance. What kind of hurdles have you encountered specifically and how can we help to overcome those?

Mr. BENTLEY. Well, I would go back to my comment that we are trying to innovate in two very large industries, power production and in transportation. In power production, of course, there are incumbents who have a stake in the wire lines, the generating facilities, and others, and we are trying to bring micropower, the same concept that was discussed on the panel discussions, we are trying

to bring micropower, which is a game changer to large generating companies and large utilities.

The problem is, you have to connect at some point to their facilities and what you need is a common set of standards for that interconnection so that they can't be used as barriers by the incumbents and also safety. We have a pretty high technology device that involves the use of hydrogen, so you can imagine that every local fire marshal might have an opinion on that.

So on both counts, both on safety and interconnection, there needs to be Federal action to harmonize how you interconnect with the utilities and how safety for fuel cells, in particular, a new technology, is dealt with. This has happened before in things like natural gas vehicles and others where there has been a national effort to coordinate regulations and it has been very successful.

So I would recommend that FERC or the Department of Energy or also the Department of Commerce, they all have efforts ongoing now to try and harmonize those interconnect standards. The Europeans and the Japanese are further ahead on that basis and so they have taken some of the risk—it takes the commercial risk out of implementing these technologies if you have surety about implementing them on a local level.

Senator BOND. Thank you. Let me ask the same question of Mr. Bedogne. How can we help with the——

Mr. BEDOGNE. I am going to be candid here, if I may.

Senator BOND. Oh, you might as well because it is Wednesday morning and what better.

Mr. BEDOGNE. First and foremost, I am a businessman and I act like a businessman. Our company acts like a businessman. I don't look at the opportunities that avail us through small business grants as corporate welfare. I look at it as opportunities for us to expand our technology. In order for us to do that, we have to prove that we can bring this to market and we can actually make this technology work. It costs us money to do that. So we had to spend our own money and our own time and resources.

The thing that worked for us is that we didn't start at the Federal Government level. We started right at the local government, and the local government has resources available to us that were beyond my understanding of "resource". I mean, I am not an expert on finding out all the areas that I needed to go to, so those people helped me, and I will talk to Mr. Patterson after this to give him some ideas of where to go to find this, but that is where I started.

Then from the State, we have a very—and our State went through some major problems in the 1980's. As businesses left, we had to redevelop and bring people back and they really focused on job creation and that job creation was funded through research and development for new product development.

There is one thing that I see that the Government can help us with is help give us the credit, if you will, for research and development. Canada gives you dollar for dollar if you create jobs. We need to get a little more aggressive on how we create jobs, and if it is coming out of products that work, we do have some opportunities that are here, that were just discussed here that are cutting edge, but it takes years for things to come out.

We chose to be very focused and we went to the Market Segment where it was going to cause the most concern on the part of the public. If diesels were polluting here, we could help prevent that. We could help improve the efficiencies of a diesel and improve the efficiencies of that engine, cut back on the consumption of power and also through EGR meet the exhaust emission to help trap the particulates. So there was some cutting-edge technology that we chose, but it was something that we funded and we got help through the State, local, and then the Federal Government.

I do think that the Government needs to be accessible to small business so we can can react. I mean, we move. Quickly, nimbly. We will decide. If we need to buy a test piece, we will buy it if it makes good business sense. We don't buy it for the purpose of having another piece of equipment. It is going to improve our bottom line.

I think if the Government sometimes would act that way and say, OK, we are going to bring this, much like the Argonne National Lab deal with DOE, we moved in 6 months where a normal other transaction or a dual-use takes 2 years. Then the budget cycle says, "well, you are going to get funded in October for our research and development, and remember, we spent just as much as the Government did." We were going to get funded in October. Well, they approved the grant in January. The funding doesn't come through. We are spending all our money in that first year, and if the budget is cut, the small business hurts.

So there are areas that need to be streamlined. Don't reinvent the wheel, please. But I think you need to go in and have people like us give you some advice on how we can streamline it, and I think the regulatory issues are a concern, our customers are dealing with that. The Caterpillars and the John Deeres and the Navistars International are dealing with that in a very proactive way to improve that. We are helping in that, though, with opportunities to assist in technology.

Senator BOND. Well, we appreciate very much your willingness to give us that guidance. If you use a little more soy diesel, people won't complain about the diesel smoke so much. But we do have things that we work on on this Committee, SBIR, STTR, those other programs that are designed to provide that assistance, but the information you give us can be very helpful.

Mr. Chairman, I thank you and I will leave it to you to carry on.

Chairman KERRY. Thank you very much, Senator Bond.

Senator BOND. We will look forward to reading the rest of the testimony of the witnesses. I thank you and apologize for leaving.

Chairman KERRY. Thank you very much.

Senator Snowe.

Senator SNOWE. Thank you, Mr. Chairman. I want to thank the panel here today for, I think, some very illuminating testimony. I gather that there is no doubt about the fact that the Government can play a key role in providing incentives in some way or providing a supportive role in encouraging small business to develop these technologies that are environmentally friendly and energy efficient. Would you all agree that government can play a role?

[Chorus of yes in response.]

Senator SNOWE. Beyond the regulatory burdens, what about tax incentives? I mean, as a Member of the Senate Finance Committee—both Senator Kerry and I are both Members of the Finance Committee and we had a hearing recently on various tax incentives and proposals to encourage the development of technologies that are energy efficient.

Mr. Bentley, I know that there is legislation that I have cosponsored with Senator Lieberman on fuel cells, providing a $1,000 tax credit for every kilowatt. What would you say about that kind of approach? Would that be helpful?

Mr. BENTLEY. Again, it is Wednesday morning, so I guess candor is the order of the day, Senator Snowe. I have watched in previous efforts to commercialize fuel cells the use of tax incentives as a mechanism and I have seen that as somewhat of a barrier in that it reduces the pressure on companies to become more cost competitive quickly. So while there is a role for incentives, I think the danger becomes that those incentives replace the inexorable drive that you have to have as a small or large business to take these new technologies and knock the costs down to where they can compete with traditional technologies.

So our company does not propose that tax incentives are a big part of the commercialization effort. We have seen the U.S. Government as being more effective in taking the risk out of R&D. So we do differ with some of the other companies in the fuel cell area, and I would just point to history to say that those programs in the past have, I think, impeded the drive to become more cost effective.

Senator SNOWE. That is interesting. So you are saying for example that it would be preferable to have the money for venture capital money for research and development, to encourage that.

Mr. BENTLEY. We have found that the Department of Energy and the Department of Commerce, in particular, have a pretty solid staff of people who understand new technology. It is complex. The ability to make poor choices is there, certainly. But a good sustained effort, in particular in those two areas, where you have a legion of technical managers who stay with these programs for 4 or 5 years, can result in some high-impact R&D. So I am much more a believer in the front end.

Chairman KERRY. Are you talking about the STTR and SBIR?

Mr. BENTLEY. Well, actually, I am speaking more about the programs like the Department of Energy Office of Transportation Technologies and the ATP within the Department of Commerce. Those are the two I am most familiar with, where they really do have people who understand the technology and get the technology.

So dollar for dollar, I would vote that new technologies—of course, we are on the cutting edge. It is hard to get capital for high-risk technologies and that is where the Government, the Federal Government, has played a role here. I think as you move more toward commercialization, companies and investors have to pick up some of the risk.

Senator SNOWE. Mr. Bedogne.

Mr. BEDOGNE. I agree. I think that if the Government can offset our research and development, we can create jobs. I think you should tie it back to jobs. I think if you are going to create jobs to

not only improve the communities that you serve or that you live in, you are winning for everybody.

The issue we have is that we will spend the money for research and development, and as we had some comments before the hearing, we did not stop. Even though our sales are down about 20 percent, the economy is starting to percolate back in our industry, but for the past 6 months, we didn't cut back on research and development because we need to stay in touch with that.

I think you could look at some States that have been innovative. Michigan has a very obtrusive single-business tax. But if you create jobs, you get a reduction in that single-business tax, which has pretty much funded our research and development facility. We built a 35,000-square foot facility that cost about $1.6 million, and over the next 10 years, because of the jobs we created out of that new product development or the new products, we get a tax credit. I think the same could work on R&D. We are the ones that are doing the R&D, not that the organizations that we all alluded to aren't. We are.

There was one comment on small businesses as far as energy. We chose to use geothermal energy. We live in the Upper Peninsula. It is cold. It snows a lot. We have an abundant source of water. My proper due diligence is that I look at it as an opportunity. If it makes good business sense, we do it. Then if I can get a credit or tax break for it, it is a win. That is just the way we do business.

So I went back and I looked at—you know, geothermal was hot in the 1980's. It was if you put a geothermal and saved money, you could get a credit for it. Well, it was sometime in 1990, it was next, and so we didn't get a credit. But we spent $600,000 on a dehumidification and air conditioning because it made business sense to do that. It would be nice to get that credit back for energy efficiency.

Senator SNOWE. Would others care to comment? Yes, Mr. Kennard?

Mr. KENNARD. I might say about Senator Edwards' proposal for tax credits for dry cleaners to get new technology, the dry cleaning industry is a mom-and-pop industry. They don't have a lot of cash reserves. There is this superior new technology available that doesn't use PERC, that is better for workers, better for consumers, better for the environment, but it is expensive. It costs like maybe $50,000.

So a tax credit of the sort he described would certainly encourage a lot of small businesses to buy that new technology and enable them to do it. My understanding actually is that in that industry, there are a lot of people trying to decide what to do, should they go with the new stuff, and so a tax credit would, I think, encourage them to go ahead and commit to a superior technology.

Mr. DREESSEN. I would like to add, although our energy services business, we don't really deal in new technologies. We only implement proven technologies because we are on the hook for the performance of them. However, having said that, I do support the R&D. I think that is something we have to do to stay ahead of the world on our technologies, but I also do it on the basis of a co-investment, because I think if both parties don't have money in the

deal, it is a simple business logic, then it becomes when things start becoming difficult, the one without the money tends to be less interested.

But one of the common themes, I guess, and I had offered in my testimony was an environmental incentive payment, and I think the common theme again is that payments, any benefit incentive payments, should be based on the delivery of results and the payment of the benefits incentives should be aligned with when the benefits are delivered.

I think that is a common theme that I think we believe in and I think everybody else here does, and I am afraid that using tax credits as a motivation creates barriers to when a customer could receive those benefits. I mean, there are timing issues. Then there are complexities with tax laws that change. There are just all kinds of additional barriers as opposed to just a straight incentive, whether it is on employees or whatever. But the more you can make that benefit received align with when they deliver whatever the benefit to the environment is, the better off you are.

Mr. PATTERSON. I tend to agree. I think the environmental incentive payments make a lot of sense, at least for a company as a startup. Tax incentives might be of use to the individuals that we are going to sell this product to. If they have to change over their manufacturing lines in order to change from using natural gas, either a tax incentive or some other sort of incentive really needs to be in place.

Senator SNOWE. Thank you very much. Thank you, Mr. Chairman.

Chairman KERRY. Senator Snowe, thank you very, very much.

I want to thank the Members of this panel. We are a little bit truncated because of the pressure, and I apologize for it.

Mr. Bedogne, Senator Levin apologizes personally that he isn't able to be here because of another hearing. That is the tension always here. He is very grateful to you for coming and offering your testimony.

Chairman KERRY. Let me just say to each of you, this is very, very helpful to us. I know that it is a short time in terms of the panel, but we are going to leave the record open. There may well be questions from colleagues. I know I have some questions I want to submit in writing to amplify on the record. I will leave the record open for about 10 days. I ask you if you could supplement the testimony in response to some of the questions.

We are going to try to build on this. This will not be the only hearing we are going to have. We are going to try to come up with a concrete set of proposals, if we can, and follow up on it. So I am very grateful to each of you for your testimony today. Thank you.

Chairman KERRY. If I could ask the second panel to come forward, Mr. Paul Stolpman and Mr. Dan Renberg.

Mr. Renberg, you are the first seated. You are going to start.

STATEMENT OF DAN RENBERG, MEMBER, BOARD OF DIRECTORS, EXPORT-IMPORT BANK OF THE UNITED STATES, WASHINGTON, D.C.

Mr. RENBERG. Thank you, Mr. Chairman. It is a privilege to be here. Having worked for Senator Specter, I know the pressures

that you are under, so I will abbreviate my abbreviated remarks and try to see if I can't get this done in about 2 minutes so that you can ask questions.

Chairman KERRY. Great.

Mr. RENBERG. I am privileged to be here on behalf of the U.S. Export-Import Bank, as you know. In fiscal year 2000, over all, we authorized $12.6 billion in financing to support $15.5 billion in sales of U.S. goods and services to foreign markets. But significantly for your Committee's perspective, 86 percent of our 2,500 transactions involved small businesses, with the dollar amount for small business authorizations increasing by nearly 10 percent to $2.3 billion. We have a very strong environmental exports program and that is why we had offered to come up here today to brief you and your colleagues and actually just to raise awareness.

Overall, the U.S. environmental industry produced $197 billion in revenues in 1999. Environmental exports have doubled from the United States since 1993, up to $21.3 billion in 1999, and it runs a surplus. It is one of the few industries where we are actually running a trade surplus as a Nation.

Ex-Im Bank's story, I think, has been a good one. In 1994, we financed 13 transactions that were environmentally beneficial exports, and in the last fiscal year, we were able to do 65. Now, some of those involve more than one company, numerous sub-suppliers, but it gives you an idea that we are experiencing the same kind of growth that the industry is. However, we know we could be doing so much more and that is why we are up here today.

The U.S. environmental industry generates less of its revenues from exports than companies in, say, Japan and Germany, and a recent study attributed this revenue differential in part to the fact that the U.S. export industry is heavily small and medium-sized businesses and they often perceive risks of international business as well as the higher costs of developing export sales as impediments to increasing their export sales earlier. That is where the U.S. Ex-Im Bank can really come in and play a role. We have several enhanced financing incentives for environmentally beneficial exports, which would include renewables as well as air pollution monitoring systems and the like.

A couple of success stories picked at random, Missouri and Massachusetts. I am privileged to be able to say in Senator Bond's absence, I guess, that Environmental Dynamics of Columbia, Missouri, which is a small business manufacturer of advanced water and wastewater treatment technologies, received Ex-Im Bank's 2001 Small Business Exporter of the Year Award in April at our annual conference. Over the first 22 years of the company's existence, their sales were mainly domestic. Then they found us, they found our export credit insurance policies, and now they have expanded into new foreign markets and they have increased their workforce from 38 to 63 employees. The only reason they won this year is because there was no Massachusetts nominee. I assure you, next year, we will rectify that.

[Laughter.]

Mr. RENBERG. But we have got a potential winner in Krofta Technologies in Lenox, Massachusetts. I am not sure if you are familiar with them.

Chairman KERRY. I am familiar with them. Absolutely.

Mr. RENBERG. Great.

Chairman KERRY. I have been out there and visited them, as a matter of fact.

Mr. RENBERG. Maybe we can go back together and see exactly how Ex-Im Bank is helping them. Bank of America has offered two 10-year loans to the Government of the Dominican Republic, with our guarantee, to win $7.4 million in orders. This took place just last month—actually, now, 2 months ago—and the orders were to design and build wastewater treatment plants in three cities in this country.

I know you read in the newspapers about Argentina and Brazil and some of the troubling economic issues. We were still able, nonetheless, to approve recently a solar transaction, a medium-term loan guarantee, just last month which will go to rural individual home units. There is a province there where 50,000 people have no electricity, which I guess is like Los Angeles on a good day. But we are able to find reasonable assurance of repayment, as the statute requires.

To just conclude, we are very active in Southeastern Europe. I noted Mr. Dreessen mentioned the hard currency issue, and one thing I would just mention to him is we are able to finance now in Euros and in Rands. Rands, because South Africa's Rand can help us penetrate Sub-Saharan Africa. The Euro is very helpful in Central and Southeastern Europe. We are trying to make whatever inroads we can to help businesses, as Mr. Dreessen said.

I will submit the rest for the record, with your indulgence.

Chairman KERRY. Thank you, Mr. Renberg. I really appreciate your sensitivity to that. I was just handed a note that I am the only amendment at foreign relations, so I have to be there, so——

Mr. RENBERG. You are in the majority now.

Chairman KERRY. Yes, but a quorum is a quorum, and when you have got it around here, they generally take advantage of it, so that is the problem.

[The prepared statement of Mr. Renberg follows:]

STATEMENT OF DAN RENBERG

MEMBER, BOARD OF DIRECTORS
EXPORT-IMPORT BANK OF THE UNITED STATES

BEFORE THE
SENATE COMMITTEE ON SMALL BUSINESS AND ENTREPRENEURSHIP

Thank you, Chairman Kerry and Senator Bond for inviting me to testify before you today on behalf of the Export-Import Bank (Ex-Im Bank) of the United States. I wish to express our agency's appreciation for the assistance your Committee has provided the Bank in the past in recognition of our substantial efforts in support of U.S. small businesses. As you know, in Fiscal Year 2000, we authorized $12.6 billion in financing to support $15.5 billion in sales of U.S. goods and services to foreign markets. This financing assisted 2,500 export sales that will sustain thousands of U.S. jobs. Last year, 86 percent of Ex-Im Bank's transactions were done with small businesses, with authorizations for small businesses increasing by nearly 10 percent to $2.3 billion – which is more than 18 percent of total authorizations.

I commend the Committee for its decision to hold an oversight hearing on the nexus between business and environmental technology. As a member of the Board of Directors of Ex-Im Bank, I am responsible for overseeing what we refer to as the Bank's environmental portfolio and spend much of my time exploring this very subject. To its credit, Congress has mandated the development of Ex-Im Bank programs regarding the environment and I believe it is very useful to review these matters with you today as Congress considers legislation reauthorizing Ex-Im Bank in the coming months.

Simply put, protecting the environment around the globe is not only the right thing to do for our children, grandchildren and their children, but it can be good business. American firms are regarded as leaders in the abatement, control, or prevention of air, water, and ground pollution and Ex-Im Bank is working closely with them to capitalize on efforts abroad to take the environment into account as economic growth occurs.

The Department of Commerce has reported that in 1999, the U.S. environmental industry produced $197 billion in revenues that supported nearly 1.3 million U.S. jobs at 115,000 U.S. companies. U.S. environmental exports have more than doubled since 1993, rising from $9.6 billion to $21.3 billion in 1999. I would note that Massachusetts came in 7th at around $1 billion in environmental exports and Missouri came in 18th out of 50 States at $346 million.

Significantly, the U.S. environmental industry is one that runs a trade surplus, with Commerce estimating a $7.3 billion surplus in 1999 thanks to exports from sectors such as resource recovery, water equipment and chemicals, and consulting and engineering services – all of which are sectors we at Ex-Im Bank are pleased to support.

Recognizing that my time before the Committee is necessarily brief, I will briefly outline for you our efforts to increase the level of environmentally beneficial exports from the United States.

To give you an idea of the scope of our involvement, Ex-Im Bank has financed numerous transactions with an environmentally beneficial export value, including short-term export credit insurance as well as medium-term and long-term loans and guarantees. Since 1994, when we financed 13 transactions, Ex-Im Bank has seen this figure grow to 65 environmental exports transactions in Fiscal Year 2000, supporting more than $870 million in such exports, with substantial increases in the use of working capital loan guarantees and export credit insurance. We are here today, however, to raise awareness of our financing products so that more companies can utilize Ex-Im Bank and compete effectively in the global marketplace.

ENVIRONMENTAL EXPORT MARKETS GENERALLY

Why is Ex-Im Bank concerned about the environment and our exporters' relationships in other countries? Because the U.S. environmental industry generates only 11 percent of its revenues from exports, compared to 15-20 percent for their major competitors in Japan and Germany. A recent study by Environmental Business International, Inc. listed a number of reasons explaining this lag in revenue. The U.S. export industry is heavily represented by small and medium-size companies. These companies perceive the risks of international business as well as the higher costs of developing export sales as impediments to increasing their export sales further.

Since 1991, there has been substantial compliance with the environmental regulations Congress and the Environmental Protection Agency have imposed on public and private entities in the United States. This means that future growth lies abroad in exports. From 1985-1990 industry-wide annual growth in the U.S. market for environmental goods and services ranged between 10 percent-15 percent. From 1991-1996, the growth rate declined to 1 percent to 5 percent. The U.S. environmental industry now finds itself at a critical juncture. While the U.S. market is estimated to grow 1.8 percent over the next two years, Latin American and Asian markets are projected to grow at annual rates of 12 percent and 10 percent, respectively. Clearly for U.S. companies, the action is in international markets.

ENVIRONMENTAL EXPORTS PROGRAM

As you may know, in 1994 Ex-Im Bank initiated a special "Environmental Exports Program" that provides enhanced levels of support for a broad range of environmental exports. The program demonstrates Ex-Im Bank's resolve to reach out to small and large exporters of environmental products and services. The major features of the program are our ability to maximize repayment terms permitted under Organization for Economic Cooperation and Development (OECD) guidelines, capitalization of interest during construction, and local cost coverage. Ex-Im Bank has developed this program in order to improve the competitive position of U.S. environmental exporters. Other key undertakings in the environmental exports context include our subsovereign risk initiative, under which we are trying to encourage municipalities

and provinces in foreign countries that have satisfactory credit ratings to procure environmental goods and services from U.S. exporters. Cities that offer promising targets for U.S. firms under this program include Sofia, Bulgaria, Zagreb, Croatia, and Bratislava, Slovakia.

Ex-Im Bank Environmental Small Business Success Stories

Let me provide you with a couple of examples of the small businesses we are already helping in their effort to reach the global marketplace.

Environmental Dynamics Inc. (EDI) of Columbia, Missouri, a manufacturer of advanced water and wastewater treatment technologies, recently received the 2001 Small Business Exporter of the Year award from Ex-Im Bank at our April Annual Conference. From its establishment in 1975 until 1997, EDI's sales were mainly domestic. Since EDI began using Ex-Im Bank's export credit insurance in 1997, EDI has expanded into new foreign markets and increased its workforce from 38 to 63 employees. Last year, the central Missouri firm increased foreign sales more than 200 percent, added 20 people to its workforce, and helped create more than 15 new jobs at local small business vendors. EDI has established sales and distribution networks in more than 30 countries and has installed equipment in more than 3,000 industrial and municipal wastewater treatment systems world-wide. The company sees continued growth opportunities and is planning to hire additional employees to expand marketing further in Asia and Latin America.

Krofta Technologies Corporation of Lenox, Massachusetts In June, 2001, Ex-Im Bank approved two separate 7-year Loan Guarantees that enabled *Krofta Technologies*, a small business manufacturer of wastewater treatment plants, to win orders to design and build two waste water treatment plants in the Dominican Republic totaling $1.5 million and $5.9 million, respectively.

BP Solar in Linthicum Heights, Maryland, the world's leading solar electric company, is exporting solar energy equipment to rural Argentina with the help of a $753,090 medium-term loan that is guaranteed by Ex-Im Bank. The financing will enable BP Solar to sell 1,500 photovoltaic energy panel systems to Empresa Jujena de Sistemas Energeticos Dispersos, S.A. (EJSEDSA), a private utility that is responsible for supplying electricity to rural areas of Jujuy province. The transaction will provide financing for the purchase of units for individual homes and will be supplemented by a grant from the World Bank and the Global Environmental Facility to the government of Argentina. The loan is being provided by Allfirst Bank in Baltimore, Md. EJSEDSA is subsidized by the Argentine government to distribute energy to the sparsely populated Puna Jujena region of Jujuy province where currently there are 50,000 residents without electricity. Solar panel units for individual homes is the most efficient and cost-effective method of delivering electricity to the region, which is heavily forested and unsuitable for land power lines. Under Ex-Im Bank's Environmental Exports Program, the medium-term loan guarantee qualified for an enhanced repayment term of six years. A regular medium-term repayment period ranges from two to five years.

Corrosion Consultants, Inc. of Roseville, Michigan is a small business manufacturer of leak detection systems for the automotive industry, and is using Ex-Im Bank's Short-Term

Environmental Export Credit Insurance Policy to offer 60-days open acount credit terms to buyers in Western Europe and Australia.

Kimre, Inc. of Miami, Florida, a small business manufacturer of environmental control filters, is using Ex-Im Bank's *short-term environmental export insurance policy* to expand its export sales. With Ex-Im Bank's Insurance, *Kimre, Inc.* is able to offer 60-days open account credit to customers in Europe and throughout the world. This offers two important benefits: (1) the insurance enables Kimre to offer reasonably priced credit to foreign customers, replacing its previous insistence on letters of credit, which are typically expensive and time consuming; and (2) Ex-Im Bank's insurance on their foreign receivables enables Kimre's own bank to increase the company's credit lines, a key step in growing their business.

Sometimes one large Ex-Im Bank transaction can help numerous small businesses who are subsuppliers pulled together by an exporter. In one transaction authorized earlier this year, Ex-Im Bank was able to assist companies in 11 States by providing a $14.7 million long-term guarantee to support the $15.8 million export by *Radian International LLC, Houston, TX* and numerous other U.S. suppliers of excavation equipment and waste treatment and technology services to Lebanon, where a project is underway to reclaim Phase 2 of the environmentally problematic Normandy Landfill adjacent to the Mediterrranean Sea in Beirut's Central District. More than a third of the U.S. exports were from small businesses, including *Read Machinery of Hingham, Massachusetts, TARMAC Industries of Blue Springs, Missouri, and Wildcat Manufacturing Company of Freeman, South Dakota.*

SOUTH-EAST EUROPE RECONSTRUCTION CREDIT INITIATIVE

Ex-Im Bank continues to seek out partners who can assist in the promotion of US environmental exports in emerging markets. With countries such as the Czech Republic and Hungary seeking accession to the European Union, environmental cleanups and proactive environmental protection measures present a wonderful marketing opportunity for American firms. In fact, the Commerce Department forecast a couple of years ago that there will be growth of 6-12 percent annually in Central and Eastern Europe.

Last year, I had the honor of signing an agreement with the Hungarian Ex-Im Bank establishing our South-East Europe Reconstruction Credit Initiative. Ex-Im Bank and the Hungarian Export-Import Bank will work together to identify environmentally beneficial projects in countries such as Croatia, Romania, and Bulgaria for joint support. We view Hungary as a particularly useful gateway into that region and look forward to expanding our partnership with our sister agency in Budapest.

An example of how this would work is that a Hungarian environmental consulting firm might bid on a wastewater treatment project in Croatia, incorporating US technologies and equipment. We could finance the US exports and Hungarian Ex-Im would provide financing to the Croatian buyer to cover the Hungarian goods and services. Such projects could qualify for our usual environmental financing enhancements. We are continuing to work with our

colleagues at the Hungarian Ex-Im Bank to flesh out this arrangement and we are actively raising awareness of our financing products across Southeastern Europe generally.

CONCLUSION

I am pleased to be able to report that now that Ex-Im Bank and its sister agencies have new leadership in place, we are prepared to tackle the issue of increasing environmental exports from the United States, particularly among small businesses. Our Chairman, John Robson, and I have already discussed this matter with our Administration colleagues and I am confident that we will succeed in assisting even more businesses in the U.S. environmental industry in the years to come.

This Committee and the Congress as a whole has an important role to play in harmonizing the efforts of the various trade agencies and providing the resources we need to fulfill our critical mission. With your help, Ex-Im Bank will be well-positioned to continue to advance the cause of promoting exports while at the same time enhancing environmental protection throughout the world. Once again, I appreciate your allowing Ex-Im Bank to make this presentation, and I would be glad to answer any questions the Committee may have.

Chairman KERRY. Mr. Stolpman, thank you for being with us. We really appreciate it.

STATEMENT OF PAUL STOLPMAN, DIRECTOR, OFFICE OF ATMOSPHERIC PROGRAMS, U.S. ENVIRONMENTAL PROTECTION AGENCY, WASHINGTON, D.C.

Mr. STOLPMAN. Thank you, Mr. Chairman. Thank you for inviting me to this very interesting panel discussion. My name is Paul Stolpman at EPA. I am the Director of the office that manages many of the voluntary energy efficiency programs and also the kind of emissions trading programs you mentioned in your opening statement.

As you know, both the President and Congress on both sides of the aisle agree that we can all move ahead together to encourage the private sector and small businesses in particular to bring innovative technologies to the marketplace, and if we do that, it will bring particular benefits to our environment.

EPA recognizes the great contribution of small businesses that they can make in bringing about environmental improvement. I am pleased to be able to comment on the ways that EPA helps small businesses bring innovative technologies to market, but also how we help them use energy efficient technologies in their daily business.

In my oral statement, I am going to try to provide a brief summary of my written statement, and I am going to focus on three areas at EPA and how they interface with the National Energy Policy Report.

The first area is Energy STAR, which Senator Bond mentioned. It is a joint EPA-DOE program. We help small businesses that develop and sell energy efficient technologies to distinguish their products in the marketplace. The Energy STAR label makes it easy for consumers and businesses to find and purchase energy efficient products. All businesses participating in the Energy STAR program must demonstrate that their product meets a third-party objective performance criteria. The Energy STAR program allows small businesses to leverage the public awareness of the Energy STAR label in marketing their products.

Over 30 product categories now carry the Energy STAR label. In the year 2000 alone, over 1,600 manufacturers with Energy STAR produced 120 million labeled products, contributing to the more than 600 million products that have been introduced into the market over the last decade. Small businesses manufacture, sell, and service many of these products, such as high-efficiency windows, reflective roof products, residential lighting fixtures, et cetera.

Second, Energy STAR helps small businesses become more energy efficient themselves, allowing greater investment. Remember, we heard an investment in groundsource heat pumps. They can return the savings from their investments into their product development. Close to 3,000 small businesses have partnered with EPA in committing to improve their energy performance.

Many more have taken advantage of the resources that EPA makes available to them. Energy STAR provides a website where small businesses can learn about evaluating their own energy performance. They can find energy efficient products. They can find

contractors, ask questions, and read about other success stories in small businesses. Energy STAR also provides guide books, hotlines, and many other resources to small industry. Each month, about 6,000 new users, new small business users, go on our website and about 3,000 of these have already downloaded a guide book specifically aimed at small businesses.

Recognizing the difficulty in reaching the millions of small businesses across the country, Energy STAR works with many organizations that small businesses trust for reliable information. These include agencies such as the Small Business Administration and organizations such as the Association for Small Business Development Centers, U.S. Chambers of Commerce, and the National Restaurant Association. Through these relationships, EPA is helping many thousands of small businesses across the country to recognize the importance of energy efficiency.

Third, EPA's new green energy program helps small businesses advance the use of renewable energy technologies. Partners in this program pledge to switch to renewable energy for some or all of their energy needs within the next year, and I am happy to say that 15 percent of all of our partners in that new program are small businesses.

In closing, Senator, these are just three examples of EPA's efforts to help small businesses innovate in the marketplace, which in turn brings about substantial reductions in greenhouse gases. We likewise encourage small businesses to bring forward creative solutions to other environmental challenges and help small businesses understand and comply with environmental regulations. We look forward to our continuing partnership with small businesses and to benefiting from their creativity. Thank you, Mr. Chairman.

Chairman KERRY. Thank you very much, Mr. Stolpman.

[The prepared statement of Mr. Stolpman follows:]

Testimony of Paul Stolpman
Director, Office of Atmospheric Programs
Office of Air and Radiation
U.S. Environmental Protection Agency
before the
Committee on Small Business and Entrepreneurship
U.S. Senate

August 1, 2001

Thank you, Mr. Chairman and Members of the Committee, for the invitation to testify before your Committee. Mr. Chairman, today's topic bringing together technology, the environment, energy and small business is timely and important. Both the President and Congress -- on both sides of the aisle -- agree that we can all move ahead together to encourage the private sector, and small business in particular, to bring innovative technologies to the marketplace, with significant benefits for our environment. EPA certainly recognizes the great contribution small business can make in helping us meet environmental challenges. I am pleased to comment on the ways that EPA helps small businesses bring innovative technologies to market as well as use these technologies to improve their own efficiency and competitiveness. I will focus on three of EPA's initiatives in this area, which have been expanded under the Administration's National Energy Policy Report. These include:

- Through the joint EPA-DOE ENERGY STAR program, we help small businesses that develop and sell energy efficient technologies to distinguish their products in the marketplace.
- Also through ENERGY STAR, EPA helps small businesses become more energy efficient themselves, allowing greater investment of their limited resources into product development.
- Through our new Green Energy Partnership Program, we help small businesses advance and use renewable energy technologies.

First, however, I would like to touch on the tremendous opportunity small businesses can offer, as well as the barriers they face, in developing, advancing, and adopting new technologies.

Small businesses contribute to the nation's ability to use energy more efficiently -- as developers of innovative energy-efficient technologies and as consumers of these technologies. In both of these ways, small businesses can improve their competitiveness while helping the environment and reducing our energy demand. Success in bringing new technologies to market allows small businesses to grow and expand, and continue to innovate. Success in reducing energy costs by using energy efficient technologies allows small businesses to put more of their limited resources into product development.

While every business faces potential barriers as it introduces or expands new products in the market, these barriers are often amplified for small businesses. Common obstacles center around the ability of small businesses to demonstrate to potential customers verifiable data on their product performance claims, particularly their energy efficiency claims. Small businesses often lack the name recognition of large, established companies with greater resources and brand names. These barriers may inhibit many small businesses from successfully bringing innovative, energy efficient technologies to the market.

Small businesses that would reap the benefits from improving their own energy performance also face important barriers. While an individual small business may have only one location and spend about $8500 on energy annually, it can, on average, reduce that cost over time by 20-30% when adopting an energy management approach to investment in energy efficient technologies. These savings can then be invested in growing the business. With several million small businesses across the country, the savings potential is tremendous. Together these businesses represent significant buying power for energy efficient technologies, many of which are developed and manufactured by small businesses. Yet the small businesses that would benefit from investing in these technologies to reduce energy costs often lack the time and expertise to analyze the options and evaluate the benefits of greater energy efficiency.

EPA is pleased to say that through ENERGY STAR, we help small businesses that develop and sell energy efficient technologies distinguish their products in the marketplace. The ENERGY STAR designation is awarded only to those products that demonstrate superior energy performance, providing the suppliers of those products with a widely recognized, objective way to distinguish themselves. EPA also raises the awareness among small businesses of the need to become more energy efficient, thus increasing the demand for products and services.

Mr. Chairman, I would like to spend a moment highlighting the achievements of ENERGY STAR, which underscore the value it offers for small business. ENERGY STAR is a well-known symbol of energy efficiency and the leader in voluntary efforts to transform the nation's approach to energy use. Working with ENERGY STAR, businesses and consumers help reduce our energy demand, protect the environment, and save money. In 2000 alone, EPA estimates that greenhouse gas emission reductions from ENERGY STAR totalled more than 15 million metric tons of carbon equivalent----the same as eliminating the emissions from more than 10 million cars. Also in 2000, EPA estimates that the use of ENERGY STAR products and practices by businesses and consumers reduced energy consumption by almost 75 billion kilowatt hours and offset about 10,000 megawatts of peak summer demand. Benefits from investments in ENERGY STAR products already made continue well into the future, as many ENERGY STAR products have long lifetimes. Overall, EPA estimates that ENERGY STAR commitments made from 1991 through 2000 have locked in emissions reductions of 1.2 trillion pounds of carbon dioxide through 2010, and will provide cumulative energy bill savings for consumers and businesses of $60 billion over this period.

One of the key benefits that ENERGY STAR delivers to the market is a label that makes it easy for consumers and businesses to find and purchase energy efficient products. Small businesses that qualify their products as ENERGY STAR distinguish themselves in the market, demonstrate that their products meet a third-party, objective performance specification, and leverage the public awareness of ENERGY STAR in marketing their products. By designating their technologies and products as ENERGY STAR, small businesses can increase their competitiveness and product sales. In other words, ENERGY STAR can help put small businesses on more equal footing with larger organizations.

Currently, over 30 product categories carry the ENERGY STAR label. Over 1,600 manufacturers partnering with ENERGY STAR produced 120 million labeled products in 2000 alone, contributing to the more than 600 million ENERGY STAR products bought throughout the last decade. Small businesses manufacture, sell, and service many of these products, such as high efficiency windows, reflective roof products, and residential lighting fixtures.

I would like to point out just two examples of small businesses that benefit from the public credility and recognition of the ENERGY STAR label. In March of this year, Governor Whitman recognized National Coatings Corporation, located in Camarillo, California, with an ENERGY STAR Award. National Coatings Corporation is an industry leader in promoting the environmental and energy benefits of reflective roof products. National Coatings promotes the benefits of its ENERGY STAR labeled roof products through public education programs, published articles, advertisements, and employee training programs. Servidyne Systems, Inc., located in Atlanta, Georgia, also received an ENERGY STAR Award this year. For 25 years, Servidyne has provided building owners and managers with products and services that improve building energy efficiency. ENERGY STAR has helped Servidyne increase recognition of its products and services. In 2000, Servidyne used an ENERGY STAR tool to rate the energy performance of 94 of its client's buildings, and helped 38 of those buildings qualify for the ENERGY STAR label.

ENERGY STAR doesn't stop there in helping small businesses.

Small businesses have limited time and resources to learn about the options for improving their energy performance. ENERGY STAR helps by partnering with individual small businesses to increase awareness of the opportunities for enhanced energy performance, and by providing the reliable information they need to make cost-effective energy investment decisions.

Currently, almost 3000 small businesses have partnered with EPA in committing to improve their energy performance. Many more have taken advantage of the resources EPA makes available to them. ENERGY STAR provides a web site where small businesses can learn about evaluating their energy performance, find ENERGY STAR products, find contractors, ask questions, and read small business success stories. ENERGY STAR also provides guidebooks, hotlines, and many other resources. Each month, about 6000 new

users get information from our small business web site, and about 3000 download our guidebook designed specifically for small businesses.

Recognizing the difficulty of reaching the millions of small businesses across the country, ENERGY STAR works with many of the organizations that small businesses trust for reliable information. These include agencies such as the Small Business Administration and the Department of Energy, and organizations such as the Association of Small Business Development Centers, U.S. Chambers of Commerce, and National Restaurant Association. Through these relationships, EPA is helping the importance of energy efficiency make its way to Main Street.

Another way that EPA is partnering with small business to advance innovative technologies and enhance environmental protection is through our new Green Energy Partnership program. Partners in this program pledge to switch to renewable energy for some or all of their electricity within the next year. This program advances the National Energy Policy Report's call for EPA to develop and implement a new partnership program to help organizations purchase renewable energy. Small businesses are leaders in developing and using renewable energy technologies, helping to ensure their own and the nation's energy security and environmental protection. Three of the Green Energy Partnership's Founding Partners are small businesses: Batdorf & Bronson Coffee Roasters, New Belgium Brewing Company, and Xantrex Technologies.

Finally, although the focus of my remarks is primarily on energy-efficient technologies, I want to add a few words about another effort that helps spread the word about innovative pollution control technologies – including technologies produced by small businesses. We maintain control-technology clearinghouses, which provide up-to-date information on the full suite of technologies available to businesses as they formulate their plans for compliance with clean-air regulations. More recently, we have added new resources to better assure that we fully assess and disseminate information on existing technologies, as well as look "over the horizon" by providing information and assessments on new and developing technologies that we expect to be available in the near future. To assist us in this task, we have worked with the University of California to developed a system to gather data on existing and coming technologies for dissemination to regulators throughout the United States. As part of this system, we assess the strengths and weaknesses of potentially useful technologies, and post these assessments on a "virtual technology center" website (www.NuTech.org) to assure wide dissemination.

Mr. Chairman, in closing I would like to point out that the President's National Energy Policy Report highlights the importance of raising awareness about the benefits of reducing energy use and expanding use of renewable energy resources. Through EPA's ENERGY STAR and Green Energy Partnership, we can improve the competitiveness of companies selling energy efficient products, as well as create demand for all technologies that improve a building, and therefore business performance.

Chairman KERRY. I appreciate your testimony and I appreciate your coming up today. It is significant that we have a representative here from EPA to discuss small business. If we were to turn to the SBA to have had someone here, we would have probably had to ask somebody from the Office of Advocacy. I am not sure where else we would turn within SBA, which is a statement in and of itself.

You do have a link. There is a link through the website, but frankly, we had staff go to the link and try to work through it and I think the lack of an energy site for small businesses, particularly within the SBA, is a mistake. No. 1, and we don't have time to discuss it fully now, but I want to put it on the table that SBA needs to have an energy site.

No. 2, I think the Energy STAR program is a terrific program. It is a great beginning. I think you are doing pretty well with it, and certainly the numbers, the number of products and so forth, is impressive. But, and here is the significant "but," when you measure that against the numbers of consumers and the numbers of small businesses in the country and the numbers of opportunities, I think it is really fair to say that our outreach is simply not where it ought to be.

The SBA outreach on this topic specifically is almost nonexistent. Let me phrase it this way to be fair. I think it is incidental. It is not a main mission, it is incidental, and I don't think it should be parenthetical anymore. I think it ought to be square, main mission, major effort, because, No. 1, you can grow so much small business, and create so many jobs through it. But, No. 2, obviously, you have the benefit of enhancing participation and the environmental benefits also.

I hope we can work together to try to figure this out. Maybe we will follow up on this, either publicly through a hearing process without this kind of pressure, for which I again apologize, or privately. We can meet on it and see how we can do this, now that we have a new Administrator coming into place at the SBA, and ultimately, I think pretty quickly, we will have these jobs filled.

I would like to see how we could really create a much more proactive outreach effort, and broadly speaking, how we can get consumers across the country to be much more tuned in to what Energy STAR is or means. I mean, I think if you asked anybody on the street today, it would be the rare person who could link the program to something meaningful in terms of their purchases. I regret that, but I think that is probably the reality. I don't know if you want to comment on that.

Mr. STOLPMAN. I actually would like to comment on that, because, in fact, we have done customer surveys. Brand recognition is dramatically increasing on Energy STAR, in part because we are working very closely with companies like Sears and Home Depot and others, because a lot of media is now running public service ads on Energy STAR. We are getting brand recognition in the order of 60 percent at this point in time——

Chairman KERRY. Well, that is good.

Mr. STOLPMAN [continuing]. Which is very high. Now, I agree with you that more outreach is necessary. It is certainly a goal of

ours to increase that public awareness, so we look forward to working with you, Senator, on that.

Chairman KERRY. We will follow up with you through staff to try to do it. What I want to try to do is see how we could get a link with EPA, DOE, and SBA so that there is a real synergy there. I think it would be helpful to everybody if that were to happen, a sort of automatic referral process that would take place for certain kinds of inquiries. Perhaps we could even develop some kind of working effort to figure out how we respond to the first panel with respect to some of their streamlining issues that we really only began to scratch the surface. But if we could pursue that, I think that would be very helpful.

I did want to pursue, and I am going to have to put these questions into the record—I will just state them publicly and we will follow up, Mr. Renberg—I think, again, what you are engaged in is terrific and very, very important for us, just enormously important for the country. Again—I think, as you have noted, there is much further that we can go. We know that foreign competitors are receiving a larger percentage of their sales from exports from the United States. This is a huge growth industry in Asia, Eastern Europe, Latin America, and will be on a global basis. So I don't think we want to lag, and I don't think you do, either.

Mr. RENBERG. No.

Chairman KERRY. My sense is, and I think you share this, that we could build the relationship between SBA and Ex-Im Bank in positive ways that would really bring a lot of small businesses to the marketplace—if even through the virtual marketplace, through cyberspace in their ability to be able to sell in places they have never thought they could. I think there is much we could do to augment that, I look forward to exploring that further with you.

Again, thank you for the preparation you put into your testimonies. Thank you very much. We stand adjourned.

[Whereupon, at 10:34 a.m., the Committee adjourned.]

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