

**DELPHI**

**Testimony of James Bertrand  
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*House Oversight and Government Reform Subcommittee on Government  
Management, Organization and Procurement*

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*“Green Building Practices in the Federal Sector:  
Progress and Challenges to Date”*

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Good morning Chairwoman Watson and Ranking Member Bilbray. My name is Jim Bertrand, and I am the President of Delphi Thermal Systems.

I am pleased to offer testimony on behalf of Delphi Corporation for today's hearing to discuss the progress and challenges confronting the federal government in adopting green building practices. I will also offer a look at some of the technology solutions that Delphi can provide to address the energy issues driving these efforts.

At Delphi, we are committed to a vision of "safe, green, and connected". We are working to develop innovative technologies that reduce environmental impact, lower emissions, and encourage sustainability. We deliver innovation for the real world, which means anticipating the needs of tomorrow and developing the right solutions today.

Delphi has a long and distinguished history of providing technology solutions to the automotive industry to make our vehicles cleaner, smarter and more energy efficient, while lessening the impact on the environment. As one example, with gas prices at a premium, Delphi has partnered with its customers to deliver hybrid electric vehicle technologies to make vehicles more energy efficient.

And now, Delphi is taking its proven automotive technologies - that have been engineered to withstand the most rigorous testing requirements - and is applying them to the residential and commercial heating and cooling markets.

Specifically within our thermal management portfolio, we continue to anticipate the energy needs of tomorrow with our Micro Channel Heat Exchangers (MCHX®), which are used in air conditioning and refrigeration products and can provide more energy-efficient cooling than traditional AC units.

**Energy Consumption on the Rise**

Today, air conditioning use alone represents nearly *13%* of all U.S. electricity consumption! On the residential air conditioning side, the consumption rate is already at *17%* and will grow to *19%* by 2030. Furthermore, the Electric Power Research Institute (EPRI) is forecasting that consumers in the United States will increase their use of electricity by *1.4%* annually through 2030. This data already accounts for the energy-efficiency legislation enacted that will impact future consumption. With energy consumption on the rise and the associated implications the increases will bring, it's an issue both government and industry can not afford to ignore.

For its part, the Federal Government is the largest consumer of energy in the U.S. economy, operating nearly 500,000 buildings. In an effort to slow the growth in its own energy consumption, the federal government has set out to achieve an ambitious series of initiatives that are dedicated to reducing emissions, increasing energy efficiency and utilizing environmentally-responsible products and technologies. As a responsible corporation with similar interests, we applaud the government's efforts on these very important initiatives.

Delphi has sought opportunities to partner with the federal government and provide its MCHX® technologies as a solution to the federal effort to reduce energy usage in federal buildings. We believe that Delphi's MCHX® heat exchanger technology can reduce refrigerant emissions, increase energy efficiency, promote 100% recyclability, and save the federal government millions of dollars in energy costs.

Surprisingly, however, as a component manufacturer we have discovered there are few direct incentives to install component technologies like Delphi's micro channel heat exchangers, and few programs that incentivize managers of federally-leased space to consider energy-efficient retrofits. The programs and incentives currently deployed are not being felt at the component level.

*As the federal government focuses on making its buildings more green and energy efficient, Delphi stands ready to serve as a partner in achieving this goal. Our portfolio of MCHX® heat exchangers, using micro channel technology, can help 'green' our federal buildings.*

### **Delphi Corporation and Delphi Thermal Systems Overview**

Headquartered in Troy, Michigan, Delphi is a leading global supplier of mobile electronics and transportation systems, including powertrain, safety, steering, thermal, and controls & security systems, electrical/electronic architecture, and in-car entertainment technologies. Applying our automotive expertise into adjacent markets, Delphi technology is also found in computing, communications, consumer accessories, and energy applications. Delphi has approximately 100,000 employees in 30 countries.

Our focus on providing "safe, green and connected" technologies to the marketplace is consistent with the goals of the Committee in protecting the environment, and we are developing and advancing technologies that can help the federal government achieve its goals of making its buildings more energy efficient, without compromising comfort.

Delphi Thermal Systems, a division of Delphi Corporation, delivers energy-efficient heating and cooling solutions while providing world-class comfort to our customers in the U.S. and around the world. Our division manufactures technologies within our four major product lines: Powertrain Cooling Systems, Heating Ventilation & Air Conditioning Systems, Compressors; and Residential and Commercial Heat Exchangers, which our micro channel technologies fall under.

### **Delphi Technology Solution: Micro Channel Heat Exchangers (MCHX®)**

We are excited to share with this Committee the benefits of Delphi's MCHX® heat exchanger technology that we believe can help this Committee achieve its goal of increasing the energy efficiency of federal buildings and reducing emissions in a cost-effective manner.

Delphi's state-of-the-art MCHX® heat exchangers are brazed aluminum heat exchangers used in stationary and transport air conditioning/refrigeration products that provide more energy-efficient cooling than traditional tube and fin heat exchangers. Its unique design enhances product efficiency by joining its components together in a single coil – ultimately helping meet demands for less storage space, easier installation, and enhanced aesthetics.

Delphi's MCHX® heat exchanger products have demonstrated success in every market we serve, including: transportation (refrigerated trucks); residential air conditioning and heating; retail food storage and bottle cooling; and commercial cooling and heating (chillers and rooftop units).

Today, Delphi manufactures 3 million micro channel heat exchangers annually for the automotive, residential and commercial markets – accounting for the largest number of units in the field. Delphi has shipped more than 50 million MCHX® parts globally. Also of note, of the Delphi MCHX® heat exchangers that we manufacture for the residential and commercial markets, 70% of our total supply chain cost comes from within the U.S. Conversely, our North American competitors are increasingly off-shoring traditional HVAC technology for this market. As this technology gains momentum in the marketplace, Delphi has the opportunity to bring organic growth to the U.S. with potential jobs and through our supply chain spend.

Our product, in combination with increased federal standards and incentives, will give consumers the opportunity to save money, space and energy while lessening the impact on the environment. The Delphi unit has the potential to provide improved energy efficiency and reduce the impact on the environment because it is smaller and lighter than traditional units; uses less refrigerant; and is able to achieve higher energy-efficient ratings.

Delphi's MCHX® heat exchangers weigh 10-40% less than traditional AC units, contain up to 40% less ozone-depleting refrigerant and are 100% recyclable due to its all-aluminum construction. To date, Delphi has saved approximately 6 million pounds of refrigerant emissions due to the technology's smaller size. In addition, we have achieved weight reductions of imported copper tubing of 20 to 23 million pounds. These mass, size and refrigerant reductions allow our customers to easily meet the mandated 13 SEER energy efficiency ratio while achieving higher energy savings of approximately 25 to 30 percent, and reduced environmental impact. In addition, these benefits translate to lower shipping costs; lower warehousing costs; lower cost of packaging materials; lower cost of structural materials; and lower cost of refrigerants.

The U.S. automotive industry successfully made the switch to micro channel heat exchanger technology more than 15 years ago because of the same benefits described above. We now have an opportunity to bring those energy and cost savings to our federal government buildings.

### **Seasonal Energy Efficiency Ratios (SEER) – Illustration of Delphi Capabilities/Efficiencies**

Examining changes in the Seasonal Energy Efficiency Ratio (SEER) – a rating on comfort equipment - illustrates the benefits of Delphi's technology to both the economy and the environment compared to associated costs with traditional AC technology.

The Energy Policy Act of 2002 increased the SEER rating from 10 to 13 in order to enhance energy conservation and provide for security and diversity in the energy supply. When enacted, the 13 SEER was predicted to save the nation **4.2** quads of energy over the next 25 years (equivalent to the energy consumed by nearly *26 million U.S. households* annually). The standard is expected to save consumers **\$1 billion** over the same period.

The benefits of the transition from SEER 10 to 13 include significant energy savings, reduced energy bills for homeowners (an estimated 23% energy savings); and reduced greenhouse emissions and air pollutants, saving an estimated 7.2 million metric tons of carbon in 2020. However, there were some associated costs with the increased SEER rating. For traditional AC manufacturers, the size of their units had to increase in order to achieve the higher efficiency, thus increasing shipping costs, product cost, refrigerant use (estimated 40% more) and the environmental impact.

In contrast – Delphi’s MCHX® heat exchanger technology is able to provide the increased SEER without the costs involved in a traditional unit. Our product is smaller, lighter, more efficient, requires less packaging, and uses less energy in shipping. The recyclability and significant refrigerant reduction also make it the much more environmentally-friendly choice. Going one step further, if Delphi were to use the same size unit as a traditional 13 SEER, in many cases we would actually be able to achieve a 16 SEER level instead.

### **Federal Buildings: Opportunities and Challenges**

The federal agencies have been directed by Congress and the Administration to undertake an ambitious effort to reduce energy consumption. The Agencies, with guidance from the Department of Energy, the General Services Administration, the Office of Management and Budget, and the Environmental Protection Agency, are taking steps to make federal buildings more “green” and energy efficient.

While these Agencies have a great opportunity to achieve cost and energy savings, Delphi also recognizes that successfully implementing these ambitious goals carry great challenges. There are literally thousands of factors that must be considered in coming up with standards and guidelines to advance this goal.

We at Delphi want to be part of the dialogue that is used to resolve these questions because we think that we have technology that can solve some of the problems. We also believe that sharing our experiences with Congress can help to ensure that the proper policies, regulations and incentives are in place to allow the federal government to capitalize on efficient new technologies.

If every federal building were to replace even just one aging tube and fin heat exchanger with a Delphi MCHX® condenser, the results would be dramatic, providing approximately:

- 5-10 million lbs of less refrigerant in the atmosphere
- 10 million lbs in material savings (mostly imported copper)
- More energy-efficient, optimized heating/cooling systems in reduced spaces
- Energy savings of 25 to 30 percent over traditional AC units

Delphi has sought to share MCHX technology with the federal government, and has found that there are two key limitations that impede opportunities for partnership.

First, Delphi has found that existing regulations, processes and programs are largely focused on “whole building” efficiencies and don’t accurately account for innovation at the component level. Delphi is offering a technology solution that could dramatically reduce the energy costs

and increase the efficiency of federal buildings. But current efforts to achieve building-wide efficiencies don't properly incentivize components.

Second, federal regulations and standards for heat exchangers have limitations that don't account for life-cycle efficiencies. Delphi believes that it is important to provide efficiency over the life of a product, not just measure increased efficiency on the day that we take a new product out of the box. Traditional HVAC technologies lose their efficiency over time. For example, a traditional air conditioning unit cools air by drawing it across metal coils. Over time, those coils corrode, and the units become less efficient. They have to run longer and work harder in order to maintain a comfortable temperature, which requires increased energy use. There are multiple technologies on the market, including the Delphi MCHX® heat exchangers, which do not lose efficiency over time. The Delphi MCHX® heat exchangers incorporate an all-aluminum coil that is reliable and does not corrode over time (corrosion contributes to efficiency reduction). *This product will be as efficient in 10 years as it is on the day it is installed.* In our experience, the federal government doesn't fully examine the life cycle of energy-efficient products as it considers energy-efficient improvements.

These are two specific problems that Delphi has recognized in our effort to offer our product as a solution to the federal agencies. Having already stated that government-wide energy efficiency is an extremely difficult challenge, we recognize that we are no experts in creating guidelines for federal procurement of green technologies. But we note that there are a number of credible proposals being discussed that would improve the implementation of green standards in federal buildings.

Delphi believes that there are tools at the government's disposal that could be used to incent rapid adoption of energy-efficient components, like our technology, and help the government achieve its goal of greening federal buildings. We do not believe that the federal agencies should abandon efforts to achieve whole building efficiencies. But we also advise against overlooking incremental – yet significant -- opportunities for gains in efficiency. Delphi respectfully submits the following three recommendations.

1. ***Establish incentives for implementation of energy-efficient components.*** Federal agencies should not sacrifice the efficiencies that can be gained by replacement and retrofit of building components. Congress could consider legislation that establishes incentives for the implementation of such components. For example, Delphi is supportive of provisions of the HomeStar legislation, which establishes incentives for home owners to retrofit their homes with efficient components and technologies in order to reduce energy consumption. Specifically, Delphi supports a provision of this legislation which establishes powerful extra incentives for homeowners who choose to implement the highest available SEER standards (18 SEER). Is there an opportunity to create comparable incentives for buildings that are owned or leased by the federal government? It is also possible that these incentives could be created without requiring new legislation or regulation. The US Green Building Council has identified existing authority for the Department of Energy and the General Services Administration to improve performance standards applicable to federal buildings and leases. This is an area where the Department of Energy and General Services Administration have existing authority that could be used to issue stronger standards, and establish incentives for improved performance that addresses components.

2. ***Examine opportunities for federal procurement reform.*** A number of pieces of legislation, such as the “Improving Federal Use of Renewable Energy and Energy Efficiency Act of 2010” introduced by Senator Tom Carper, make recommendations for improving federal procurement of energy-efficient building technologies. Delphi is supportive of elements of these various pieces of technology. Section seven of the Carper bill addresses the lack of a single energy management and data collection standard for federal energy-efficiency efforts. This provision would require the Administrator of General Services, Secretary of Defense, and Secretary of Energy to develop a plan and guidance for a single, universal standard. This section would also require them to submit a plan to publish energy consumption data, for each individual facility, on the Internet. Such measurement would be an important step toward allowing for comparisons of life cycle energy efficiency, and analysis and comparison of the efficiency of specific technologies. Delphi also supports Section nine of this legislation which would allow federal buildings projects that face long delays in construction to update the project design to meet applicable Federal building energy efficiency standards.
  
3. ***Consider pilot programs to test and analyze retrofit performance.*** Finally, Delphi would like to recommend that this Committee consider creation of a series of pilot programs that examine the cost savings and energy efficiency of specific green upgrades to federal buildings. Pilot programs should examine the implementation costs of retrofits, as well as the short term AND longer term efficiencies and savings of technology upgrades. We respectfully recommend that the pilot program should examine technology components.

## **Conclusion**

Delphi is proud of its nearly 100-year history of providing innovative solutions to automotive technology challenges. Now it’s time to turn that expertise to another, even more pressing challenge, and leverage our expertise in the residential and commercial HVAC industry to drive increased efficiency at a lower cost. We are committed to helping the federal government in its effort to achieve our mutual goal of protecting our environment and preserving our energy sources for the future.

Delphi would like to offer its MCHX® heat exchanger technologies to the federal government as a solution and an option for reducing growth in energy consumption. But we have faced challenges in presenting this option to the federal agencies and to managers of federal office space. Currently, there are no ongoing programs or incentives for implementing energy-efficient appliance components, and little interest in examining the long-term/life cycle efficiency of the technologies installed in federal buildings.

We look forward to working with this Committee as it continues to examine the progress of making federal buildings more green and energy efficient.

Thank you again for the opportunity to present testimony to this Committee.

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