Testimony of Phil Schoen
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On "Innovative Practices to Create Jobs and Reduce Pollution"

Before the

Subcommittee on Green Jobs and the New Economy

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Good morning, I am Phil Schoen, CEO of GEO-Enterprises, an Oklahoma-based company founded in 1997 that specializes in the design and application of geothermal heating and cooling solutions. GEO-Enterprises has 24 employees, and our company provides a range of services from thermal conductivity testing and modeling to complete turnkey loop field installations for residential and commercial projects.

I am pleased to participate in today's hearing on behalf of GEO – the Geothermal Exchange Organization, a non-profit trade association representing the U.S. geothermal heat pump industry. I serve on the board of GEO and have worked in the industry for more than 30 years.

Before I offer some thoughts about innovative strategies that could expand our industry, lower energy costs for consumers, and reduce emissions, let me briefly describe how our technology works.

A geothermal heat pump is a 50-State, clean, renewable technology that uses solar energy naturally stored just beneath the earth's surface to heat and cool residential and commercial buildings and to provide hot water at rates 40 to 70 percent cheaper than conventional heating and cooling technologies.

While conventional furnaces and boilers burn a fuel to generate heat, geothermal heat pumps use minimal amounts of electricity to transfer heat between the earth and a building, allowing much higher efficiencies. The most efficient fuel-burning heater can reach efficiencies around 95 percent, but geothermal heat pumps operate at 400 percent efficiency.

Geothermal heat pumps use 25 to 50 percent less electricity than conventional heating or cooling systems, and according to the Environmental Protection Agency, they can reduce energy consumption – and corresponding emissions – by 44 to 72 percent compared to traditional heating and cooling equipment.

Despite this well-documented energy efficiency, our industry is still relatively small, with less than 5-percent market penetration for new construction. The primary barriers to expanding our industry include:

(1) high initial installation cost;
(2) lack of consumer awareness;
(3) the need for more qualified design and installation professionals; and
(4) the need for builders, developers, realtors, lenders, and appraisers to value energy savings.

While each of these barriers presents unique challenges that we must address, our number one challenge is the high initial installation cost, primarily due to the installation of the underground loop.

One strategy that is very promising is on-bill financing, which allows residential and commercial energy efficiency projects to be financed directly on the utility bill. The advantage of this approach is that the up-front costs are converted into a small monthly payment that is more than offset by the monthly energy savings realized by the project.

Several states, including Illinois and California, have initiated on-bill financing programs. But many utilities are reluctant to participate because of concerns about the default risk and the added complexity of administering the financing. Some utilities have turned to third-party financing programs as a solution, particularly in the residential market.

By creating a federal program that would reduce the financial exposure of the utilities – through a loan-loss fund for example – I am confident that more utilities would implement on-bill financing programs. A federal loan-loss backstop would offer utilities a major incentive and would not be very expensive. The default rate for on-bill financing programs is very low, and since the loan is tied to the utility bill and not the homeowner, the loan would continue to be paid as long as the building is occupied.

If you are looking for a relatively inexpensive way to create jobs, improve the energy efficiency of our homes and buildings, lower energy costs for consumers, and reduce greenhouse gas emissions, I can think of no better approach than encouraging more utility companies to offer on-bill financing programs for installing geothermal heat pumps.

By tackling the upfront cost issue, we expect our industry will rapidly expand and we will create thousands of new jobs. These are U.S.-based jobs – from the manufacturing to the drilling to the installation. We estimate that one new job will be created in this country for every additional 18 heat pump installations – and that is a very conservative estimate. From my perspective, I would expect that my installations would more than double if we had a robust on-bill financing program. This would allow me to grow my workforce by one-third – from 24 to 32 workers.

We will also dramatically reduce carbon emissions. Over an average 20-year lifespan, the installation of 100,000 units of residential geothermal systems can reduce greenhouse gas emissions by almost 1.1 million metric tons – the equivalent of removing 58,700 cars from our roads or planting more than 120,000 acres of trees.

Thank you again for the opportunity to testify at today's hearing.