Congressional Inaction Puts the Geothermal Heat Pump Industry and Thousands of Jobs in Peril

Doug Dougherty, GEO President and CEO

On Dec. 8, the U.S. Congress passed a stopgap spending bill to fund the U.S. government without an extension of the Investment Tax Credit (Sec. 48) or Residential Energy Efficiency Property Credit (Sec. 25D) for geothermal heat pumps (GHPs). The Senate followed suit on Dec. 9. The Geothermal Exchange Organization (GEO) is extremely disappointed at this outcome after a year of intense effort to extend our tax credits. The exclusion of these incentives from the House spending bill is the latest roadblock for nascent energy-efficiency technologies.

This time last year, Congress extended energy tax credits for wind and solar technologies that are primarily produced overseas, but left out lower profile options like GHPs, fuel cells, microturbines, small wind and combined heat and power. GHPs are domestically produced, over 90% of the components are “Made in the USA,” and every heat exchanger is installed by Americans.

Expiration of these federal tax credits for commercial and residential applications of GHPs and other clean, renewable energy technologies on Dec. 31, threatens the livelihoods of thousands of Americans employed by these nascent industries.

The technologies left behind are a critical component for meeting energy efficiency and environmental goals in the United States. The exclusion of energy tax credits from the House spending bill not only threatens progress on that front, but the economy as well.

The GHP industry alone supports a significant share of those workers, offering well-paid manufacturing and installation jobs across a range of specialties encompassing engineering, manufacturing, supply, distribution, sales, drilling, installation and service.

Inaction by Congress has put the once bright future of our industry in peril.

As many of you are aware, GEO and its allies have worked tirelessly and at great expense in Washington and at the grassroots level to persuade congressional leaders on both sides of the aisle to
correct their error when only installation tax credits for the wind and solar industries were extended last December.

Despite our best “all hands on deck” effort, we fought an uphill climb against the headwinds of perhaps the most contentious election cycle in American history.

Its outcome has shaken Washington with uncertainties in future tax policy, which resulted in Congressional action on their stopgap measure to fund the government. And that was GEO’s last hope this year of extending the tax credits for GHPs before they expire at the end of the month.

Depending on Beltway politics, our next best chance for attaching extension language to viable legislation to gain parity with wind and solar may not happen until late-spring.

But for now, the expiration of renewable energy tax credits impacts both the residential and commercial markets and is a double punch to the gut to businesses and consumers who want to make energy-efficient investments.

In addition to losing the Investment Tax Credit, businesses may no longer be able to use a tax provision for five-year accelerated depreciation and first-year bonus depreciation for installing GHP technologies. And homeowners who install this efficient heating and cooling technology will essentially suffer a tax increase.

Advanced energy technologies are good for the economy, consumers, and the environment. Bolstering all technologies – not just wind and solar – should be a no-brainer.

When new pieces of legislation are considered in early 2017, GEO will continue its work to convince Congressional leaders that they must fairly apply the tax code and ensure that the GHP industry can compete on a level playing field with other clean, renewable energy technologies.

We support tax reform that eliminates all forms of subsidies for all energy sources and technologies. If no one is getting a tax break the GHP industry wins because it is the most efficient way to satisfy the thermal loads of buildings, the single biggest user of energy. But until we see that day of a free market for renewable energy technologies, the industry left behind needs immediate parity with wind and solar.

GEO is not quitting, and neither should any of you. We need local businesses across the country to calculate the economic impact of this inaction for GHPs to their bottom lines, and voice it loudly to their local members of Congress. Our industry needs federal tax incentives that are evenly applied. As of today they aren’t. And as of now, GEO renews its political effort. We hope all join us.

Thousands of U.S. jobs depend on it!
ASHRAE 2017 Winter Conference

The American Society of Heating, Refrigeration, and Air-conditioning Engineers (ASHRAE) will convene its 2017 Winter Conference on Jan. 28-Feb. 1 at Caesars Palace. The AHR Expo will be held on Jan. 30-Feb. 1 at the Las Vegas Convention Center. The twin events are expected to draw thousands of professionals from around the world.

- 200 Professional Developed Hours recognized by most U.S. states, AIA LUs and LEED AP credits through ASHRAE Learning Institute course and Technical Program sessions.
- Technical Program will include eight tracks to bridge the gap between the design decisions made today that will impact the future.
- 20 Professional Development Seminars and Short courses are offered by the ASHRAE Learning Institute.
- Two administrations of its six certification program exams, including its new Building Commissioning Professional (BCxP) certification.

CLICK HERE to register for the ASHRAE Winter Conference in Las Vegas, including free access to the AHR Expo

Expo Education Program

The AHR EXPO is the trade show held in conjunction with the ASHRAE Winter Conference. Building on the success at prior AHR Expos, the 2017 event will feature a wide array of educational opportunities. On Jan. 30-Feb. 1, all attendees can participate in a number of free seminars and presentations, paid programming and professional certification exams.

A complete list of 2017 AHR Expo educational opportunities can be found HERE. For more information and registration, click HERE.

DON'T MISS the Water-Energy Nexus technical session on Tuesday, Jan. 31, at 9:45-11:00 a.m. for presentations on geothermal heating and cooling applications that reduce or eliminate the need for cooling towers. Presentations will include:

- “The Energy-Water Highway: Getting the Least Use from Evaporative Devices,” presented by Cary Smith (Sound Geothermal Corp.), and
VGHPA Pushes for Geothermal Tax Credit

Dec. 7 – The Virginia Geothermal Heat Pump Association (VGHPA) is working to file legislation with the state General Assembly that will offer a tax credit for residential installations of geothermal heat pumps (GHPs). Provisions of the measure include:

- Credit covers 25% of the cost of residential GHP equipment and installation with a maximum total credit for a single residence not to exceed $10,000.
- Customers can take $2,500 annually on their tax form until the 25% cap is reached.
- Equipment must meet federal Energy Star efficiency requirements at time of installation.
- Credit cannot exceed 50% of a person’s taxable liability.
- Credit can be carried forward for 10 years or until amount has been reached.
- Aggregate cap for any fiscal year of $10 million.
- Credit sunsets at the end of 2022.

VGHPA conducted a feasibility/economic study on the potential of the plan. Last spring and summer the group met with General Assembly leadership, drafted legislative language, and identified potential patrons. The Geothermal Exchange Organization (GEO) and GHP manufacturers are supporting the effort, which now includes the advocacy services of May Fox and Tom Lisk with Eckert Seamans (Richmond, VA).

“Senate Commerce Chairman Frank Wagner (R-21st District) and House Caucus Chairman Rep. Tim Hugo (R-40th District) have agreed to patron the bills in both chambers,” said Lay. “And the VGHPA team has met with many key political leaders in the state to lay the necessary groundwork for passage of our legislation.”

The legislation is supported by the Virginia Homebuilders Association, the Virginia Well-Drillers Association, and Association of Electric Cooperatives in Virginia, Delaware and Maryland. The state’s major utility, Dominion Power, and the Virginia Oil and Gas Association have taken a neutral position on the measure.

Lay is cautiously optimistic of VGHPA’s chances in the 2017 Assembly.” Loss of federal tax incentives makes their effort in Virginia even more critical,” he said. “Our senators and delegates have a choice: Do you stand by and watch $40 million in lost income and wages become a reality due to job losses? Or do you invest in the GHP industry and your own fiscal heath by supporting our proposed tax credit and enjoy growth instead?” You can read the draft legislation here. (VGHPA / GEO)

Join Our Effort!

GEO needs the involvement and full support of everyone in the geothermal heat pump industry. It’s time to step up and JOIN GEO!

CLICK HERE For more information and to sign up.
NY Gov. Cuomo Vetoes Geo Bill

Nov. 28 – New York Gov. Cuomo vetoed Assembly Bill 9925, a bill that would amend the tax law to reduce personal income tax liability by an amount equal to 25% of qualified geothermal energy systems expenditures. The bill passed the State Legislature last spring, and was promoted by the New York Geothermal Energy Organization (NY-GEO).

“We are disappointed to report that despite widespread support from so many of you, Governor Cuomo has vetoed the geothermal tax credit bill,” said NY-GEO Executive Director Bill Nowak. “The Governor’s failure to act is a tragic missed opportunity to further the state’s fight against climate change. His unwillingness to fund this relatively small credit is puzzling in light of the huge investments he has committed for other energy sectors.”

Nowak thanked the many supporters of the legislation, including 160+ businesses, local elected officials and environmental organizations who signed a letter urging the Governor to approve the bill. “Thank you for your calls, emails, encouragement, and organizing work,” he said. “And thanks especially to New Yorkers for Clean Power and the Alliance for a Green Economy. Their work on this initiative has been incredible.”

“What shouldn’t be lost in the shuffle is that NY’s energy leaders are starting to acknowledge the importance of moving away from burning fossil fuels to heat our homes and businesses - and your advocacy helped,” said Nowak.

In his veto message, Cuomo said that the geothermal tax credit bill, “suffers from the same fundamental flaw as the bill I vetoed last year – it does not identify a designated source of funding to offset the significant cost of providing a tax credit for the installation of qualified geothermal energy system expenditures. Such funding decisions should occur in the context of the annual budget negotiations.” Gov. Cuomo also highlighted his administration’s efforts to promote geothermal energy:

- New York State Energy Research and Development Authority (NYSERDA) heat pump demonstration program that will install and monitor some 40 systems on Long Island, and work with the geothermal industry to monitor performance of 50 existing systems around the state.
- A NYSERDA assessment of the best path forward for developing the market and increasing the use of geothermal systems and other renewable heating and cooling technologies will be offered in 2017, with recommendations for promotion of the technology for homes, businesses and institutions.
- The New York Power Authority is working on a geothermal installation initiative focused on campuses and state buildings.

NY-GEO lauded the administration’s intention to support geothermal energy, but Nowak said those efforts will not help the industry or New York homeowners in the short-term. Nowak pledged to take the Governor up on his invitation to raise the tax credit issue in budget negotiations which are currently starting up. NY-GEO will urge the Governor to include the tax credit in his executive budget and will work with our many friends in the legislature to include the tax credit in the 2017-18 state budget. (NY-GEO / GEO)
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**Annual Summit Feb.7-8, 2017 • Westin Downtown Austin, TX**

SPEER’s Annual Summit is the premier energy efficiency event for Texas and Oklahoma. The event includes breakout sessions on utility programs, building energy codes, efficiency financing, distributed generation, efficiency in electric markets, demand response, local government initiatives and much more. Click [here](#) for more information.

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**When you Think “Geothermal” – Think “GEO”**

The Geothermal Exchange Organization represents the U.S. geothermal heat pump industry through outreach to government and the public. For more, visit [www.geoexchange.org](http://www.geoexchange.org).
Mine Water Provides Heat at Montana Tech

Nov. 27 – Zachariah Bryan writes in the Montana Standard that Montana Tech (Butte, MT) is using a geoxchange loop extending into an abandoned copper mine to capture heat for one of its buildings. According to the article, the school’s “geothermal demonstration project at the Orphan Boy mine shaft is essentially a 50-ton ground-source heat pump that is using the mine’s warmer-than-average water to heat the school's 56,000-square-foot Natural Resources Building.

“It’s an intriguing project for Butte because of the hundreds of old abandoned mine shafts below the streets, all filled with groundwater. Until now the water has been useless, contaminated as it is from the remnants of mining. One man’s environmental disaster, though, is another man’s opportunity to heat (or cool) buildings.

“According to data from January through July of 2014, shortly after the project was completed, the heat pump delivered 88 percent of the building’s annual heating needs, reduced carbon dioxide emissions 39 percent and saved $17,000 (40 percent) per year in utility costs.

“The process involves a closed-loop system with 600 feet of piping installed into the mine shaft. The facility pumps the water, which averages 78 deg. F, through the pipes and to the heat exchanger, where it's warmed to 135 deg. F and actually can be used either to heat or cool the building.

“Leading up to the construction of the building, researchers found that the mine water holds a natural convection, meaning the temperature of the water is distributed equally throughout the shaft, with no hot or cold spots, allowing for more efficiency. And there’s no concern of running out. There’s a lot of water — 332 million gallons of it.” The mine was built in the early 1900s and has been abandoned for several years.

Montana Tech officials say cost is a barrier to heating the entire campus, or indeed, the city of Butte, with water from abandoned mines in the area. Another barrier is the toxic nature of the water. Read the article here. (Montana Standard)

Illinois Geothermal Conference
March 27-29, 2017

Registration Now Open Online  Plan to attend the 2017 Illinois Geothermal Conference on March 27-29, at the Par-a-dice Casino and Hotel in East Peoria.

For more information, CLICK HERE for the Geothermal Alliance of Illinois (GAOI) website.

We’re Moving!  GAOI is moving January 1 to 176 Maple Grove, Springfield, IL 62712. You can reach Executive Director John Freitag by phone at (217) 971-3533, or by email: jfreitag@gaoi.org.
Certified GeoExchange Designer Course

In cooperation with the Association of Energy Engineers (AEE) and the Geothermal Exchange Organization (GEO), the International Ground Source Heat Pump Association (IGSHPA) has designed a program to offer advanced training towards certification as a Certified GeoExchange Designer (CGD). From an introduction to the technology to a complete review of the design process, participants learn the information they need about design of residential and commercial systems, ground heat exchangers, soil and rock conductivity, borehole grouting, thermal conductivity, in-situ testing, software and system performance.

CGD Plus Course

These courses are offered through IGSHPA and also by independent IGSHPA accredited CGD Trainers. This course includes the same information as the IGSHPA distance learning course PLUS additional material developed by the instructor. You receive the benefit of the instructor’s years of geothermal experience while learning the material. Courses include a minimum 20 hours of instruction, CGD Books and IGSHPA manual set, and an ASHRAE manual.

Check with IGSHPA about Eligibility Requirements

January 9 - Mar 13, 2017
Online - 1 hour webinar per week
Trainer: Ed Lohrenz, B.E.S., CGD
Fee $1665

March 13-14, 2017
in conjunction with IGHSPA’s Conference and Expo in Denver, CO

Register by Feb. 14 – Limited Seating!
Workshop fee includes Conference and Expo

Registration Fee $2,000 with certification / $1,600 without certification • IGSHPA Member Discount ($50)

CLICK HERE to register for the IGSHPA CGD Plus Designer Course

CLICK HERE for more about the IGSHPA Conference and Expo
**Let’s Get HVAC Out of the Sewer**

Nov. 14 – Writing in the *Air-Conditioning, Heating and Refrigeration News (ACHR – The News)* consultant Jay Egg discusses wastewater thermal extraction, calling it “a technology that has come of age.” As an example, he notes that a joint venture between International Wastewater Systems Inc. and Renew Energy Partners LLC will result in the installation of a thousand thermal heat recovery systems in California, which will provide the domestic hot water needs in 50-100 multifamily housing units.

“The potential for energy recovery with wastewater is staggering. According to the U.S. Department of Energy (DOE), 350 billion kWh of usable energy goes down the drain each year. This is enough energy to heat 5 billion average-sized homes in the dead of winter for an entire day (24 hours) or heat 69 billion DHW tanks from room temperature to 130 deg. F. This is a remarkably large quantity of energy that is not being recovered.

“Primarily, waste energy recovery systems are viewed as, or treated as a source of, energy, like a boiler, and, alternatively, will operate as a heat sink, like a cooling tower. Geothermal heat pumps (GHPs) are the central component of the thermal extraction/rejection portion of energy recovery. GHPs use available energy in liquids between 25 and 110 deg. and are able to absorb and reject heat to and from them... and deliver final temperatures from well-below freezing to 140 deg. above for uses such as space conditioning, refrigeration, or domestic hot water.

“Of course, these applications are well-suited to be a hybrid of waste energy—as the primary source/sink—and earth-coupled systems. The earth-coupled portion of projects is reduced in both scope and cost by taking advantage of the wastewater thermal energy heat source and sink.

“Hydronic systems are amazing because they effectively channel Btu within a pipeline, unlike air-source systems. GHPs make the magic happen by simply managing Btu entrained in liquids to whatever temperature is needed at the time. GHPs are the center of the energy universe for renewable and sustainable energy systems.” Read the article [here](#). *(ACHR – The News)*

**Primer on Net Zero Energy**

Sept. 7 - Writing in *Renewable Energy World*, consultant Jay Egg points out that the U.S. Department of Energy's (DOE) recent definition of Net-Zero buildings concentrates solely on electricity generated onsite that can be exported back to the power grid. In doing so, the definition ignores the issue of onsite emissions, as DOE admits that its definition “.... does not tell the whole story of impacts from resource consumption and emissions associated with energy use.” At issue is where fossil fuels are burned to obtain energy, in power plants to generate electricity, or onsite to produce heat.

“There is no further mention of greenhouse gas (GHG) emissions, so in a Net-Zero building, combustion heating, a source of GHG emissions, may be employed,” Egg contends. “The source of GHG emissions in buildings comes from combustion heating. With no combustion heating in our buildings, we have no direct (onsite) emissions. Many may wonder how heating may be accomplished without combustion, or without the burning of fossil fuels. The answer is geothermal heating.” Read more about the issue [here](#). *(Renewable Energy World)*
IGSHPA Certified Inspector Workshops

January 18-19, at Stillwater, OK
Lunch and breaks are provided • Registration begins at 7:30 am.

March 13-14, 2017, in conjunction with
IGHSPA’s Conference and Expo in Denver, CO
Register by Feb. 14 – Limited Seating!
Workshop fee includes Conference and Expo
Workshop registration starts at 7:30 a.m.

Workshop Registration Fee $850 • IGSHPA Member Discount ($50)
GROUP DISCOUNTS are available if five or more people attend from your company or organization. Please call 800-626-4747 to get a group discount rate.

CLICK HERE to register for the IGSHPA Certified Inspector Workshops

IGSHPA Accredited Installer Workshops

January 25-27, 2017, at Stillwater, OK
Lunch and breaks provided • Registration begins at 7:45 am.

March 13-14, 2017, in conjunction with
IGHSPA’s Conference and Expo in Denver, CO
Register by Feb. 14 – Limited Seating!
Workshop fee includes Conference and Expo
Workshop registration starts at 7:45 a.m.

Workshop Registration Fee $850 • IGSHPA Member Discount ($50)
GROUP DISCOUNTS are available if five or more people attend from your company or organization. Please call 800-626-4747 to get a group discount rate.

CLICK HERE to register for the IGSHPA Accredited Installer Workshops

CLICK HERE for more information about the IGSHPA Conference and Expo
CLICK HERE for travel and Lodging Information for the Stillwater workshop
DOE Issues New PACE Guidelines
Nov. 24 - After months of review, the U.S. Department of Energy (DOE) has released its new Property Assessed Clean Energy (PACE) guidelines. They emphasize recommended protections that PACE programs should put in place for consumers who voluntarily opt into the service, as well as for lenders that hold mortgages on properties with PACE assessments. DOE also provides additional program design recommendations that address the unique needs and potential vulnerabilities of low-income and elderly households, to help ensure that PACE financing is used appropriately and at the least cost for low-income households that otherwise meet program eligibility criteria. The United States’ largest PACE providers don’t anticipate any complications with the DOE’s new guidelines. Major PACE finance organizations Renovate America and Ygrene Energy Fund believe they are already in line with most of what the government is suggesting. Read more here, and here. (CleanTechnica.com and SEC)

Optimistic About Renewables, But Not Quite Right
Nov. 15 – Americans are right that renewable energy is taking a larger role in energy supply, just by not as much as they think, according to a Makovsky survey of more than 1,000 residents across the United States, “How Americans Make Energy Decisions: and the Sources and Channels They Trust the Most.”

Mavosky Executive Vice President of Energy, Manufacturing and Sustainability Andy Beck says, “Turns out that Americans are a bit overly optimistic about the role that renewable energy plays in the U.S. The average American believes that 20% of the country’s energy use comes from renewables—11% from solar and nine percent from wind. The reality is quite different. According to the U.S. Energy Information Administration (EIA), solar is at 1%, wind is at only 2%.

“Looking five years out, Americans expect solar to be at 20%, and wind at 14%. That’s still optimistic. EIA forecasts that in five years solar will account for one percent and wind for three percent.” The disparity shows that the renewables industry has done a really good job of highlighting its success and positioning itself as the energy source of choice in the American public’s mind.

“With 57% reporting that they hear about energy issues a few times a week, these results suggest energy companies need to think about strategies that convey trust, stewardship and innovation. A one-size-fits-all approach simply no longer works for any segment of the energy industry.” Read the article here. (Renewable Energy World / Makovsky)

Details about the conference and registration are posted HERE. Scroll down the page for details and further links about the conference agenda and reception on the evening prior to the event. A Radiant Workshop will be convened the day prior to the conference (no charge to IGA Members).
U.S. Home Construction Jumps

Nov. 19 - Builders broke ground on the most new homes in nine years in October, in response to strong demand that should lift the economy. Home construction soared 25.5% to a seasonally adjusted 1.3 million in October, the U.S. Commerce Department said. That is the biggest gain since July 1982. New construction is also at the highest level since August 2007, months before the Great Recession began. Americans are clamoring to buy homes, but there are few properties on the market, driving up prices. Mortgage rates remain low, making more homes affordable. Steady hiring and some signs that pay gains are picking up have bolstered demand for housing. Younger Americans, buoyed by higher pay, are moving out on their own, renting apartments or seeking to buy houses. Sales of new and existing homes have picked up in recent months. Read more here. (Builder and Developer)