

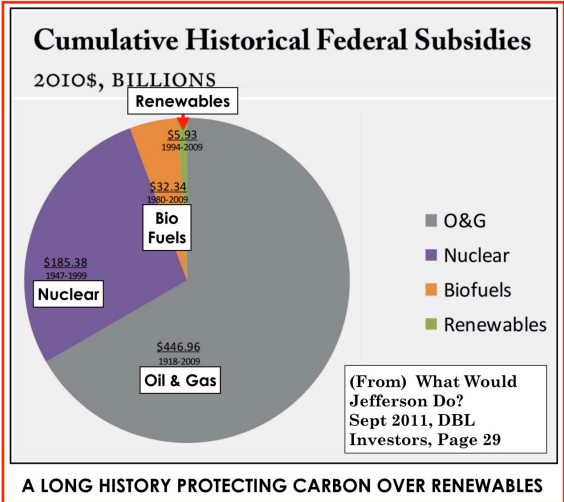
**The Overview—**

In 2024, the worldwide understanding grew for the threats from climate change. Media coverage of heat-linked deaths showed that they, along with broken high temperature records have been costly, especially for those without air conditioning who might also face increasing interruption of their power supply.

These high temperatures (on land) have mixed with the air above, boosting ocean temperatures to record highs. Such ocean temperatures breed higher rainfall, stronger storms, and greater damage to onshore facilities. That result displaces more of the population and raises government emergency spending. Insurance rates have gone way up, and insurance companies continue to abandon more states, lowering citizen access to protection.

Meanwhile, the fossil companies continue their misinformation campaigns, including their most recent and bold blame shift. Global warming is the fault of consumers’ use of their products, much like the tobacco companies blamed cancer on their smokers, not on their product.

The Inflation Reduction Act’s progress accelerated the installation of geo projects large and small, making a dent in carbon emissions. Our industry has nothing to apologize for—while our government continues to shower fossil and nuclear interests with financial incentives as it has for decades.



**Organizational Specifics—**

We remain a a non-profit 501c6 all-volunteer trade association in support of the geo heat pump industry in California and beyond. As we seat new directors on January 23rd, two of them will be Canadians. This is serendipitous, as the new geo standard CSA/ ANSI/IGSHPA-448 will serve as a reference for North America, including future training that we anticipate providing. We also maintain AIA licensure as an Educational Providing agent.

California Geothermal Heat Pump Association (Director roll-off schedule)			
	(End of)	Professional	Years of Service
Board Member	Year of Roll-Off	Industry Segment	At Roll-Off Date
Chris Coley	2025	Geo Operations Mgr.	3 (2025)
Lisa Meline	2025	Engineer	3 (2025)
Kent Penning	2025	Mechanical Contractor	3 (2025)
Sandra Law	2026	Utility Consultant	3 (2026)
Kevin Smidt	2026	Driller	3 (2026)
Steve Weitzel	2026	Manufacturer	3 (2026)
Mark Metzner	2027	Consultant	6 (2027)
Jeff Quibell	2027	Engineer	3 (2027)
Aran Winn	2027	Manufacturer	3 (2027)

Our directors meet monthly except for the busiest field months of July and August. We continue to review and update our ByLaws so that they match our operating procedures. We have established three Standing Committees on which our directors and members can serve to make progress on our Strategic Plan’s goals and tasks.

Our website is now eight years old and we have decided to make an overhaul. Our goal is to make the “look and feel” attractive to future visitors who don’t yet know about geothermal heat pump technology and the contribution it can make to decarbonization and the resilience of the nation’s electrical grid.

We will remove anything that doesn’t directly support an answer to the questions: What is a geo heat pump?, How does it work? What can it do for me? And, How do I choose the HP and heat exchanger system that’s best for me. One of the recent documents we’ve added in this vein is a [Buyers Guide](#), found on the home page of our website. It was written by geo veteran and our Director Kent Penning.

State and National Progress—

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**THE ASPIRATION**  
Owner strives to create world class facility using energy efficient solutions

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**SOLUTIONS OFFERED**

- Geothermal based heating and cooling
- Borefield installed beneath building
- 705 bores to 365 ft deep
- Drilled directly within the critical path of construction

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**RESULT**

- Largest geothermal installation in California

We are nearing the opening of the \$1.5B George Lucas Museum in Los Angeles, in 2026, the largest commercial geothermal building system in California. It will be a public facility where millions will visit each year. And it’s 100% geo and carbon-free.

After a too long influence by the gas industry, dozens of local jurisdictions have passed regulations to stay all-electric in new construction. Research on kitchen emissions from cooking with gas has identified multiple medical harms, especially for children. It’s only been three years since the California Energy Commission replaced its Title-24

baseline’s reliance on gas, now replacing it with heat pumps. Induction cooking has expanded and is more readily accepted by consumers, too. The new construction mandate for rooftop solar will now be better matched with all-electric buildings.

Especially where truck-delivered liquid fuels or bottled gas are part of the energy system, every new building with geo (because it is served by electricity, anyway) will result energy delivery without pipelines, tanker, or propane trucks. Heat pumps will convert heating/cooling benefits by ambient air, or in the case of geo, liquid loop heat exchangers underground.

On the east coast, New York and Massachusetts are effectively spreading geothermal technology as an example for all of us. The former now has multiple buildings in NYC that are carbonless geo projects, housing hundreds of residential inhabitants. The Coney Island example (now complete) is adjacent to mass transit, provides over 200 parking spaces, supports 463 private residences and lots of commercial space. All this is set on only 1.5 acres of land.

In Massachusetts, the Framingham Thermal Energy Network is now operating for about 200 customers. It was five years in the making and blends the needs of customers, state regulators, a citizen group sponsor, and a gas utility company. There are a handful of medium scale TENS

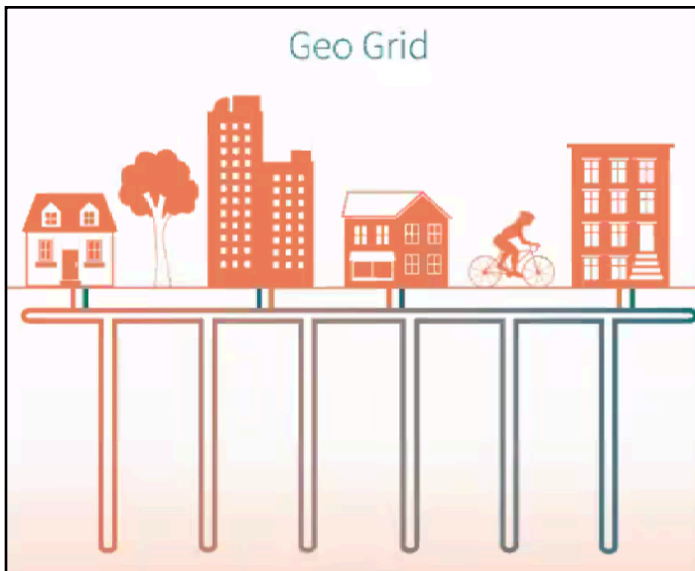
**New Project, Coney Island**  
1515 Surf Avenue, NYC

**AMENITIES**

- 463 residences atop 11,000 sf commercial
- Short walk to mass transit
- All 397,000 SF served by geo heat pump
- 233-space interior parking garage

**INFRASTRUCTURE**

- Dual 16 & 26 story towers on 1.5 acres
- 153 Vertical Geo heat exchangers to 500 ft
- “Geo” system was only 1% of the \$170 million construction budget
- Tentative occupancy in 2024



(Thermal Energy Networks) around, but they operate more like a HOA on an approved local charter. The Framingham Project (and two other Massachusetts projects that will follow) are quite different. In this Pilot, the gas utility will abandon gas service for those who chose to go geo. Those residents signing up will receive geo retrofits at no cost, and a small slice of the rate base for ALL regional gas customers will foot the bill to pay for neighborhood drilling and an ambient geo loop that serves all those who choose to connect. For many, this will be the first time that they have experienced central air conditioning. What makes this pilot especially unique is that it was a community group focused on weatherization that brought all the parties together, sponsored an engineering feasibility study, and then pressed the

issue with regulators and the local gas utility. The group has since made efforts to spread this model to other states. At this point, all signs point to a successful pilot that can be copied, elsewhere.

The geo loop will be maintained within a planned temperature range and in some cases, by a sharing of heating and cooling along the network will exchange thermal energy between those buildings with their varied occupancies. Otherwise, pumped circulation to underground heat exchangers to condition the loop will be employed to stay within limits. Within months of this project's completion, adjacent neighbors not currently on the loop system requested a loop extension for their participation.

The greater the number of consumers who hear of these projects, the greater will be the likelihood of their spreading elsewhere. CaliforniaGeo hopes that similar breakthroughs become possible in the Golden State.

## Our Future Efforts—

Two of our Directors are centrally involved in portions of the re-design of the former IGSHPA training curriculum formerly held by Oklahoma State University. One of our former Directors is, too, along with colleagues we interact with frequently, as former presenters for our UNDERGROUND programs. The new curriculum will update the old version and a more effective certification process will be managed by a separate third party. There will also be new elements to the training curriculum, more of them “hands-on.”

All of this re-design will be anchored to the CSA-448 North American Standard for geo heat pump design, materials, installation and commissioning practices. Though this project is closer to the beginning than to completion, it is based on the fact that as the industry grows and public demand increases for geo, we had better be ready with an adequate supply of well-trained practitioners to meet the public's needs.

Bill Martin, President

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