Third Party Ownership of Geothermal Heat Pump Systems

Moderator: Tim Wright / *Enertech USA*

Panel: Bob Wyman / *Self*

Kareem Mirza / *Ecotherm Renewables*

Holly Braun / *NW Natural*

Maggie McCarey / *Dandelion Energy*

TPO of Geo Systems: Presentation Overview

Bob Wyman will provide the back story: Section 48 ITC for commercial was untouched. The loss of 25D shook the industry, should it? Moving forward!

Kareem Mirza of EcoTherm Renewables focuses on long-term geothermal & HVAC infrastructure for large buildings.

Holly Braun of NW Natural – Leveraging utility decarbonization mandates to convert gas customers to using geothermal for TPO.

Maggie McCarey of Dandelion Energy forging ahead to unlock builder adoption through TPO and the Federal ITC.

NY-GEO 2026 CONFERENCE

Geothermal Leasing:

A New Era in Geothermal

We're almost there!

Bob Wyman · 2026

WHAT CONGRESS DID RIGHT

The OBBBA: A Genuine Breakthrough for GHP

§48 ITC Now Covers Leased GHP

For the first time, third-party owners of geothermal heat pump equipment can claim the federal Investment Tax Credit.

Limited Use Property Exemption

OBBBA §70513 explicitly exempted GHP systems from IRS 'limited use property' rules — a unique carve-out not given to other energy technologies.

100% Bonus Depreciation Permanent

Full first-year expensing now applies to GHP equipment, dramatically improving lessor economics when combined with the ITC.

MLPs Can Now Operate GHP Property

OBBBA §70524 added GHP operation to MLP qualifying income (26 USC §7704(d)(1)(E)(vi)). Thermal Energy Networks can now be organized as publicly traded partnerships — unlocking infrastructure-scale capital.

Enacted July 4, 2025 · Pub. L. 119-21

THE MARKET CASE FOR THIRD-PARTY OWNERSHIP

Why TPO Models Are Essential for Mass Deployment

$20K–$40K

Typical residential GHP install cost

~0%

Homeowners who pay cash for HVAC

50+ yrs

Useful life of a ground loop

The Solar Model Applied to Geothermal

- Lessor owns equipment, claims ITC — passes savings to customer as lower monthly payments
- Ground loop is ideal lease asset: 50+ year life, minimal maintenance, site-specific value
- Eliminates $20K–$40K upfront barrier for homeowners
- Enables utility-scale financing (tax equity) for residential deployments
- Networked/community GHP systems require split ownership by design

OBSTACLE 1

Treasury Decision 10015: The Ownership Bundling Rule

TD 10015 rule: if different taxpayers own different parts of a project that are functionally interdependent, no one can claim an ITC.

Treasury Decision 10015, 89 FR 100598 (Dec. 12, 2024)

The Rule

A 'unit of energy property' must have a single owner. All functionally interdependent components must be owned by the same taxpayer to qualify for the §48 ITC.

Applied to GHP

Ground loop + heat pump are deemed 'functionally interdependent' — neither can heat or cool a structure alone. Therefore: one owner must hold both.

The Commercial Problem

This blocks the rational split: lessor owns the durable ground loop; homeowner owns (or separately finances) the heat pump.

Not Grounded in the Law

26 USC §48 grants credits to geothermal 'equipment' — not 'systems.' The bundling requirement is an IRS addition. Congress never required it.

THE OWNERSHIP TRAP

Two Components. One Owner Required. The Fix Is Splitting Them.

GROUND LOOP

Life: 50+ years

Maintenance: Essentially none

Residual: High (site-specific)

Abuse risk: Very low

Ideal as: ✓ Lease asset

TD 10015 requires single owner

HEAT PUMP

Life: 20–25 years

Maintenance: Regular; abuse-prone

Residual: Low (depreciates fast)

Abuse risk: High

Ideal as: ✗ Poor lease asset

OBSTACLE 2

Rev. Proc. 2001-28: The True Lease Doctrine

Even if a lessor owns both components, leasing the full system creates a second problem.

1

20% Residual Value Test

Equipment must retain ≥20% of original cost at lease end. Heat pumps depreciate to near zero — this test is very hard to satisfy for mechanical HVAC equipment.

2

Useful Life Requirement

Remaining useful life at lease end must be ≥ 1 year or 20% of original life. A 20-year heat pump on a 15-year lease barely passes, with no margin.

3

No Economic Compulsion to Purchase

Lessee must not be economically compelled to buy at end. Residential GHP: lessee cannot easily remove the ground loop, creating implicit compulsion.

4

Triple-Net Leases Shift Risk

Full maintenance/insurance transfer to lessee weakens lessor's ownership claim. Without triple-net, lessor assumes lifetime warranty on abuse-prone equipment.

WHY THE CURRENT RULES DON'T QUITE FIT

Three Leasing Structures — Each Falls Short Without the Fix

Option A: Lease the Ground Loop Only

Commercially ideal — ground loop is durable, low-maintenance, high residual value. Needs TD 10015 update: currently requires lessor to own heat pump too to claim ITC.

Needs TD 10015 update

Option B: Triple-Net Lease the Full System

Shifts maintenance risk to lessee (rational, since lessee controls usage). Needs true-lease safe harbor: Rev. Proc. 2001-28 currently creates ITC recapture risk.

Needs true-lease safe harbor

Option C: Full-Service Lease (retain maintenance)

Qualifies as true lease today, but lessor must accept maintenance on equipment they don't control. Works only if service cost is priced in — raises customer cost significantly.

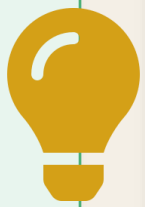
Works, but raises cost

THERE IS A PRECEDENT

Treasury Already Solved This — for Biogas

BIOGAS (solved)

- Biogas collection systems have interdependent components
- Multiple owners needed: utility owns pipes, producer owns compressors
- Industry requested split-ownership treatment in comments
- Treasury reclassified biogas components from 'functionally interdependent' to 'integral'
- Result: different taxpayers can own different pieces — all qualify for ITC



Same problem.
Same fix.
Different industry.

GHP (unsolved)

- GHP systems have two clearly interdependent components
- Residential market requires lessor owns loop; homeowner owns/leases heat pump
- GeoExchange industry requested identical treatment during TD 10015 comments
- Treasury declined to extend the biogas reclassification to GHP
- Result: split-ownership structure blocked; ITC unavailable for lessor

THE STATUTORY ARGUMENT

The Law Says 'Equipment.' IRS Must Follow.

PATH 1 (Preferred)

IRS Must Conform to the Statute

- 26 USC §48 grants credits to geothermal 'equipment' — not 'systems'
- Congress uses both words in the tax code; different words mean different things
- IRS imposed a unified-system requirement that the statute does not require
- The fix is not a new regulation — it is IRS conforming to what Congress actually wrote
- Industry ask: IRS guidance acknowledging that 'equipment' does not require single-owner bundling

Statutory conformance — IRS has no authority to add requirements the law omits

PATH 2 (Fallback)

Reclassify GHP Components as 'Integral'

- If IRS declines the statutory argument, existing TD 10015 framework offers a second route
- Treasury reclassified biogas components from 'functionally interdependent' to 'integral' — allowing split ownership
- GeoExchange industry requested identical treatment during TD 10015 comment period
- Reclassifying the heat pump as 'integral' to the ground loop would achieve the same result
- Weaker argument than Path 1 — accepts IRS framing rather than challenging it

Regulatory revision — works within TD 10015 framework

CALL TO ACTION

Congress did the heavy lifting. We're one guidance document from the finish line.

- Submit comments to IRS/Treasury urging GHP component reclassification under TD 10015 (the biogas fix)
- Ask Congressional champions to request Treasury guidance prioritizing GHP true-lease safe harbor
- Build a coalition: NY-GEO + GeoExchange + state geothermal associations presenting a unified ask
- Document real-world deals stalled by the current rules — Treasury responds to evidence

Bob Wyman · bob@wyman.us · mystack.wyman.us · NY-GEO 2026

ONE MORE THING

The Next Frontier: REIT Capital for Geothermal

Solving the ITC leasing issue unlocks one capital market. REITs would unlock another — but current IRS rules present a second set of open questions.

Current IRS Rule (26 CFR §1.856-10)

Structural components qualify as REIT real property only if the REIT holds an interest in both the component and the structure it serves.

This prevents REITs from owning third-party GHP systems unless they also own the building — blocking the TPO model entirely.

Current barrier

The Easement Question (Open)

An easement is an interest in real property under common law. Ground loops installed under an easement may therefore qualify as a real property improvement — and be REIT-able.

This is an open legal question worth pursuing. IRS has not ruled on it.

Theory to develop

RECs Are Not REIT-able (Open)

The IRS has ruled that Renewable Energy Credits (RECs) are intangible assets — not real property income.

For geothermal systems generating RECs, this limits REIT income qualification and is a separate issue the industry needs to address.

Open issue

Third-Party Geothermal Ownership in Practice

Geothermal is financially competitive today if structured correctly; OB3A sweetens the deal.

Presented By: Kareem Mirza – Founder, EcoTherm

EcoTherm – a Reinova Partners platform company focused on long-term geothermal and HVAC infrastructure for large buildings.

Why Third-Party Geothermal Ownership Now?

For developers and owners, the barriers to geothermal are high upfront capex, long-term performance risk and schedule complexity around subsurface work.

Third-party ownership turns the geothermal + HVAC package into long-term infrastructure under 36-year, fixed-price contracts instead of a construction line item.

OB3A preserved Section 48 ITCs for commercial geothermal and carved out an exception to the limited-use property doctrine so third parties can now own and lease these systems.

What EcoTherm Does

Developer, owner and operator of distributed geothermal (and, where appropriate, air-source) heat pump infrastructure for multifamily, hospitality, commercial and campus-scale projects.

We own both the ground-side exchange and the in-building HVAC infrastructure, delivering heating and cooling as a 36-year service instead of a capex line.

Backed by Reinova Partners' energy transition infrastructure fund, with a mandate across decarbonization of the built environment in North America and Europe.

OB3A: Better Economics for Both Sides

Without OB3A ITC flexibility

- 300-unit new-build multifamily near Chicago; total building cost around 40M, including geothermal and HVAC infrastructure.
- Structured as long-term TPO without using OB3A's leasing flexibility, EcoTherm could target around 9.5% pre-tax unlevered IRR—acceptable, but with limited room to lower client pricing.

With OB3A-enabled ITC structuring

- Same project, but we realize Section 48 ITCs at the platform level while leasing the system back to the building under our ESA.
- We now underwrite around 10.5% pre-tax unlevered IRR and can reduce the client's annual service fee by roughly 10%.
- Our design objective is to share the tax credit value roughly 50/50 with clients, typically delivering a 10–15% reduction in annual fees versus a no-credit structure.

Replacing Equity, Not Debt – and Starting Early

- We bring capital and technical capability in from the earliest stage—feasibility, test bores and design—so geothermal is integrated without schedule surprises.
- Our capex for the geothermal and HVAC scope sits in the building's capex stack alongside developer equity; lenders can keep their loan-to-cost unchanged.
- That allows the owner to raise materially less equity, while maintaining the same amount of senior debt.
- Result: equity-adjusted returns for the owner increase significantly, while the building benefits from long-life, low-carbon infrastructure owned and managed by a specialist.

Who Owns the Risk?

Traditional owner-funded mechanical system

- *Upfront Capital:* Owner funds 100% of geothermal and HVAC capex with project equity and debt.
- *Performance & capacity:* Owner carries long-term risk that systems meet heating and cooling loads.
- *Thermal testing & subsurface risk:* Developer coordinates test bores and conductivity work, often late in design, creating schedule risk.
- *O&M & lifecycle cost:* Owner manages contractors, spare parts and mid-life replacements over decades.
- *Technology obsolescence & replacement:* Owner bears technology change and replacement risk.

EcoTherm-owned geothermal & HVAC

- *Upfront Capital:* EcoTherm funds that scope as long-term infrastructure; owner preserves equity for core real estate.
- *Performance & capacity:* We guarantee capacity under a 36-year ESA—owner buys performance, not equipment.
- *Thermal testing & subsurface risk:* We engage early, take on thermal conductivity testing as part of our scope and integrate those results into our design and timeline.
- *O&M & lifecycle cost:* We manage O&M through specialist operators and build lifecycle cost into our economics.
- *Technology obsolescence & replacement:* We take tech-obsolescence and replacement risk inside the long-term contract.

Proving the Model Across Markets

- Two high-rise mixed-use towers in Burlington, Vermont: multifamily, hotel and retail, with EcoTherm owning the HVAC infrastructure under long-term ESA structures.
- A 300-unit Class A mid/high-rise multifamily project in the Chicago area, structured as a geothermal-centric TPO solution with 36-year service contracts.
- A 350-key hotel redevelopment in Kauai, Hawaii, pairing large-scale heat pump infrastructure with a hospitality asset.
- Additional contracted pipeline, including a Connecticut multifamily project and follow-on work with repeat developers.

We typically target $15M+ projects and are open to smaller initial deals when they come with follow-on potential from the same owner group.

Putting it all together

Geothermal is already financially competitive for large buildings when structured as long-term, third-party-owned infrastructure with reasonable unlevered IRRs.

OB3A's treatment of Section 48 and the limited-use property doctrine lets platforms like EcoTherm own and lease these systems, finance around ITCs and share value with building owners.

By engaging at the earliest project stages, we can take on thermal conductivity testing, design risk and capital for the geothermal/HVAC scope, preventing schedule delays.

We're actively seeking multifamily, hospitality and other new-build projects where our capital and ownership model can boost owner returns and de-risk delivery.

NY-Geo: Third Party Ownership Pathway for Gas Utility Investment in Geo

Holly Braun, Decarbonization Program Manager
March 25, 2026

NW Natural®

NW Natural Quick Stats

- Stand alone gas utility HQ in Portland, OR
- ~800,000 customers
- 14,000 miles of pipeline – fully modernized

Pathway for Geo investment:

- WA: TENs-specific legislation passed in 2024
- OR: Steep carbon reduction mandates
- Compliance met through load reduction, alt fuel and buying allowances- starting at $136/mte CO

Quiz/Poll:

- How does an investor-owned utility make money?
- Criteria for regulatory commission approval of expenditures/investment?

Hurdles/risks as we reduce carbon with geo

Risks of moving forward with Geo:

- Liability/hassle owning equipment in people's homes
- Cannibalizing our current load
- Identity – gas company or thermal energy company?
- Rate recovery disallowance if not least cost/least risk

Risk of not moving forward with Geo:

- Customers electrifying without any investment opportunity for us
- Customers electrifying means fewer therms flowing – rates go up for remaining gas customers

Proposal/Concept

Engage TP to install and own ground loop + GSHP for 5 years

- TP claims ITC and assumes risk for in-unit equipment
- NWN pays TP for carbon reduction at a rate ≤ a carbon allowance
- NWN acts as pass-through for mo payments - charge customer “on bill” for system and remit monthly to third party

After 5 years and 1 day

- GSHP ownership transfers to customer
- NWN purchases partially depreciated portfolio from third party and continues to earn off the ground loop
- Customer continues to pay monthly utility charge for the ground loop

Proof of concept: 2024 Pilot

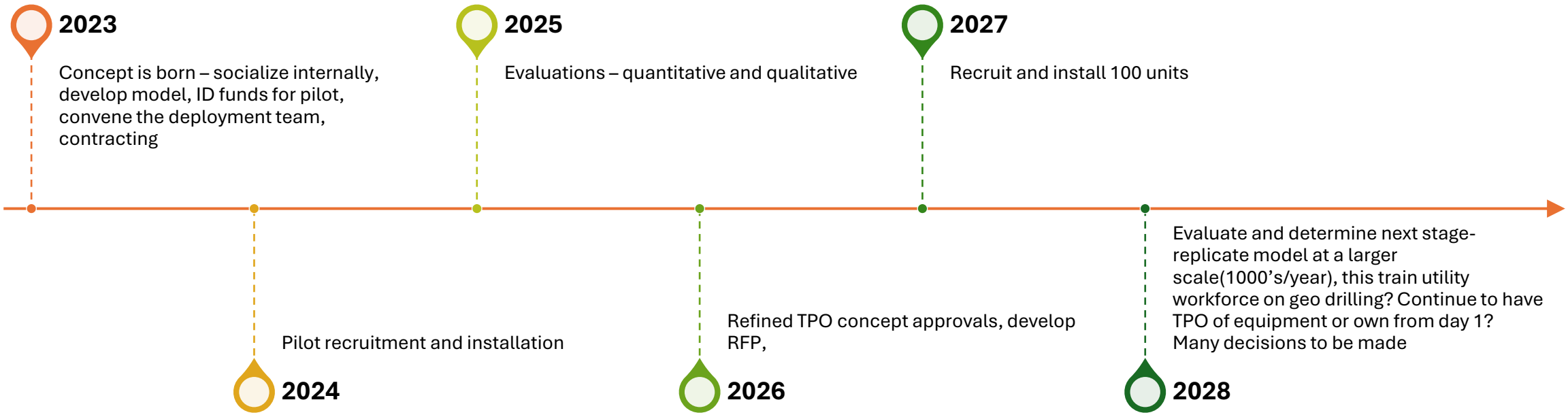
Installed 12 gas furnaces and GSHP + ground loops, validated:

- Positive user experience – install and on-going performance
- Energy/bill savings mirrored our models
- Pricing/discount associated with batching work and committing to 12

Bonus:

- Identified process improvements necessary to scale further
- Evaluation reports used to help educate the efficiency community – changing hearts and minds and helping calculate incentives

Timeline/Next Steps

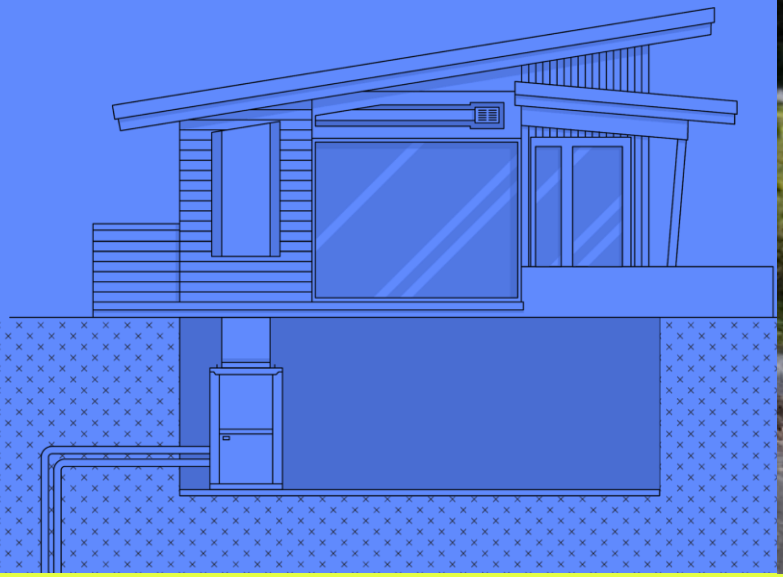



NW Natural®
Let’s create the future we imagine.

Third Party Ownership

Unlocking Builder Adoption Through TPO and Federal ITC

Maggie McCarey
VP of Policy + Strategy
Dandelion Energy



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Partners with Builders to Scale Geothermal

“Our collaboration with Dandelion Energy brings **innovative geothermal technology** into our homes—offering homeowners a **cleaner, more efficient way to heat and cool** their homes, while **reducing long-term costs** and future-proofing their investment. It supports our broader commitment to making **high-quality, attainable housing more accessible**.”

Stuart Miller, Executive Chairman & Co-CEO
Lennar Corporation

See Why Dandelion is Trusted By Homeowners & Home Builders Nationwide

THE NEIGHBORHOODS OF EYA

SUMMIT PROPERTIES

LENNAR

Toll Brothers
America’s Luxury Home Builder™

Discovery LAND COMPANY

TRUMARK HOMES

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Dandelion Geothermal

Executing geo at builder production scale

Bethesda, MD

35 townhomes in a new luxury brownstone development with EYA

Denver, CO

1,500+ homes across the Denver metro area with Lennar

Boyds, MD

220+ single family home community with Lennar

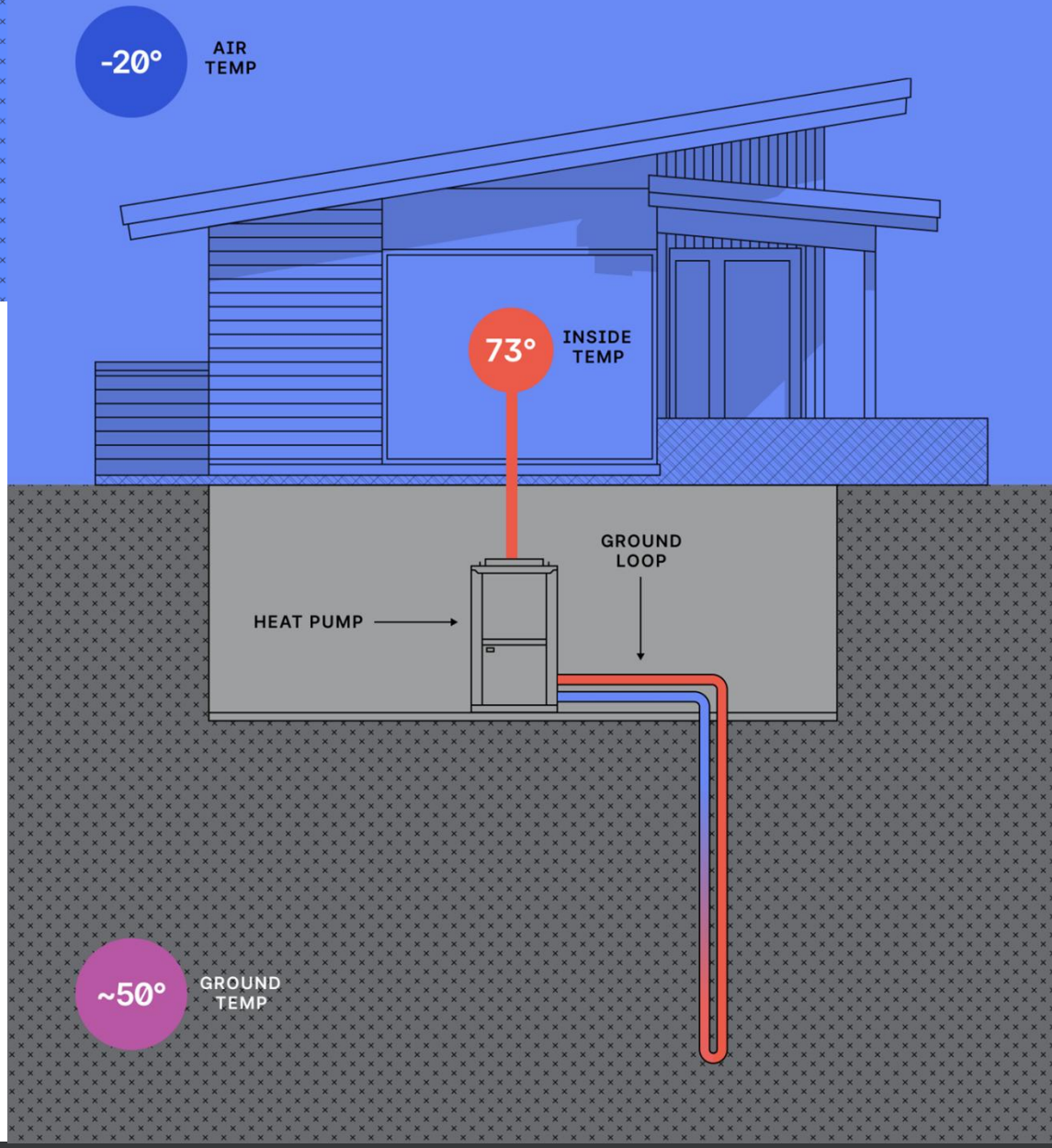
Princeton, NJ

30 townhomes with Toll Brothers

Policy Drivers

Public Policy to Support Scaled Adoption of Geothermal

- **Energy Efficiency Rebates**
  - Geothermal-Specific Incentives, High efficiency builder rebates (ex: MA, NY, CO)
  - Rebate Reservation Systems (ex - CO)
- **Geothermal Renewable Energy Credits (next session!)**
  - Performance-based crediting/RPS carve out for Geo - provides ongoing or upfront cost offset
  - Maryland (in place), Illinois (passed/under dev.), Virginia (bill with Governor)
- **Tax Credits**
  - State and county (ex: NY, CO)
- **Zoning/Code**
  - Gas line extensions (NY, MD, MA)
  - All-electric or high efficiency code



Misalignment of Costs/Benefits

Builders and developers shoulder up-front cost differential, primary beneficiaries are homebuyers or tenants, and electric ratepayers

Builder

Incremental cost for geothermal compared to conventional; rebates and incentives starting to close gap in some states/munis

Homebuyer

50% cost savings compared to air-source; maintenance and replacement savings, comfortable, quiet, premium system

Ratepayers

65%+ winter peak

20%+ summer peak reduction

SOLUTION

Third party ownership that shifts some of up-front cost differential from builder to homebuyer.

Maintain and increase rebates/incentives that monetize energy, grid, and GHG value.

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Leasing and TPO for Builders

The Past

→ **25D:** 30% tax credit for homebuyer; for production build this was a nice to have but did not drive *builder* adoption.

→ **Utility rebates:** encourage builder adoption, but often don't reflect full GHG and grid value.

→ **Builder Purchase:** homebuyer owns system with significant benefits and cost savings.

The Future (Now!)

→ **Section 48:** 30-50% tax credit w/ residential TPO unlocked (limited use barrier removed).

→ **Utility Rebates and GRECs:** designed to drive builder adoption at scale and value full benefits stack.

→ **Third Party Purchase:** homebuyer leases system, maintains cost savings with lease payment < utility bill savings.

Scaling TPO Nationwide

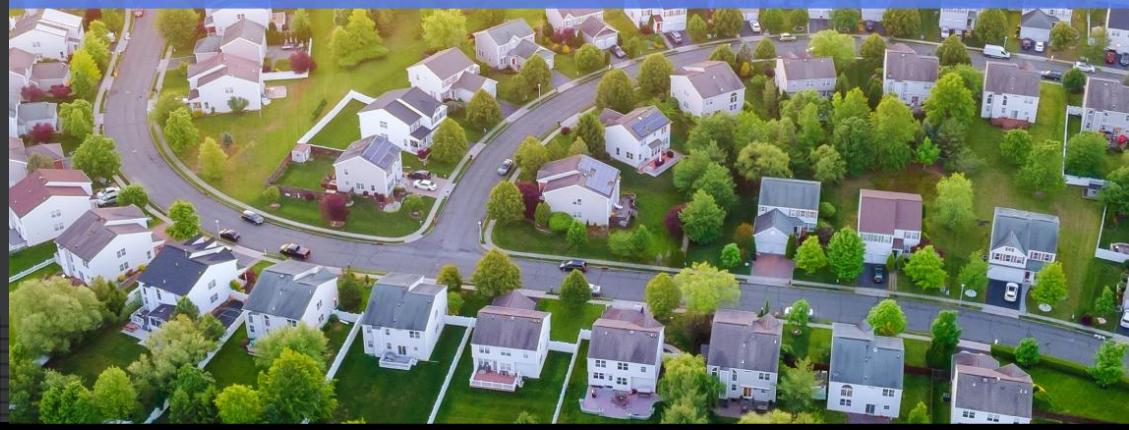
Dandelion has Announced Two Strategic Partnerships

Upstream

Diverso energy

ANNOUNCEMENT

Dandelion Grows Nationwide Financing Capacity With New Financing Partner to Launch "Geo-as-a-Service" Offering.



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Leasing Challenges (and myths debunked)

Capital Partner: Identifying a third-party investment partner to fund geothermal systems up-front and enter into homeowner agreements

Program Design Decisions:

- Lease vs PPA vs Service Agreement
- Length of lease agreements
- Buyout periods/options
- Warranty and maintenance structures
- Procedures for non-payment
- Interaction with rebates and incentives

Leasing Perceptions Addressed (what we've learned so far):

- Homebuyers have positive or neutral view of a leased geothermal system because of system benefits | Does not add friction to the buying/selling process
- Benefits (energy and cost savings) greatly outweigh cost of ongoing lease payment in many markets

Another TPO Model:
VT Gas Systems

36 **Apartment & townhomes, affordable for rent**

Tenants and Utility Value

- ~45% annual opex savings & annual CO2 reduction
- Monthly thermal assessment to VGS, would not be VGS customers without geothermal assessment
- Clean, quiet, reliable HVAC

Developer Benefits

- Utility loop ownership solves Capex for developer
- Eliminates outdoor condensers
- Frees site space for landscaping or units
- Future-proof electrification compliance

Thank you!

Questions?

Maggie McCarey
VP of Policy + Strategy
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