NY-GEO

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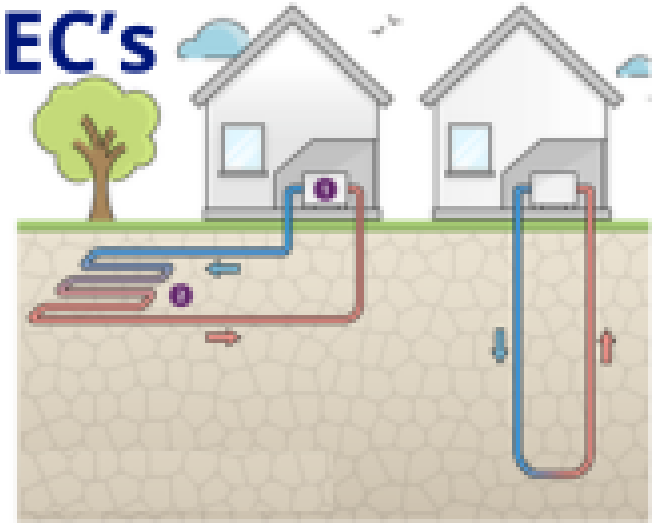
Geothermal Renewable Energy Credits: GREC's

Moderated by: Donovan Gordon

Presenters:

- Ryan Dougherty/GEOExchange
- Brian Ferrarese/Dandelion Energy
- Kelcy Kline/Carbon Solutions Group



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NY-GEO members have access to a platform, the NY-GEO website, for sharing valuable information and tools with the community.

Post open positions.

Share your organization's events that benefit the industry.

Announce exciting news for your organization.

Training and Education that benefit the industry

NY-GEO

LET'S TALK GSHP 2026

WHEN & WHERE

Bi-Weekly on Fridays beginning Jan 16 | From 3:00 pm - 4:00 pm

YOUR HOST

Hosted by John "JR" Rath, Director of Operations

WHAT TO EXPECT

Lively sessions keep members informed via member initiated discussions and/or frequent expert led presentations.

NY-GEO 2027

April 26-28

Saratoga Springs, NY

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MEET THE PRESENTERS

Ryan Dougherty

GEOExchange

Brian Ferrarese

Dandelion Energy

Donovan Gordon

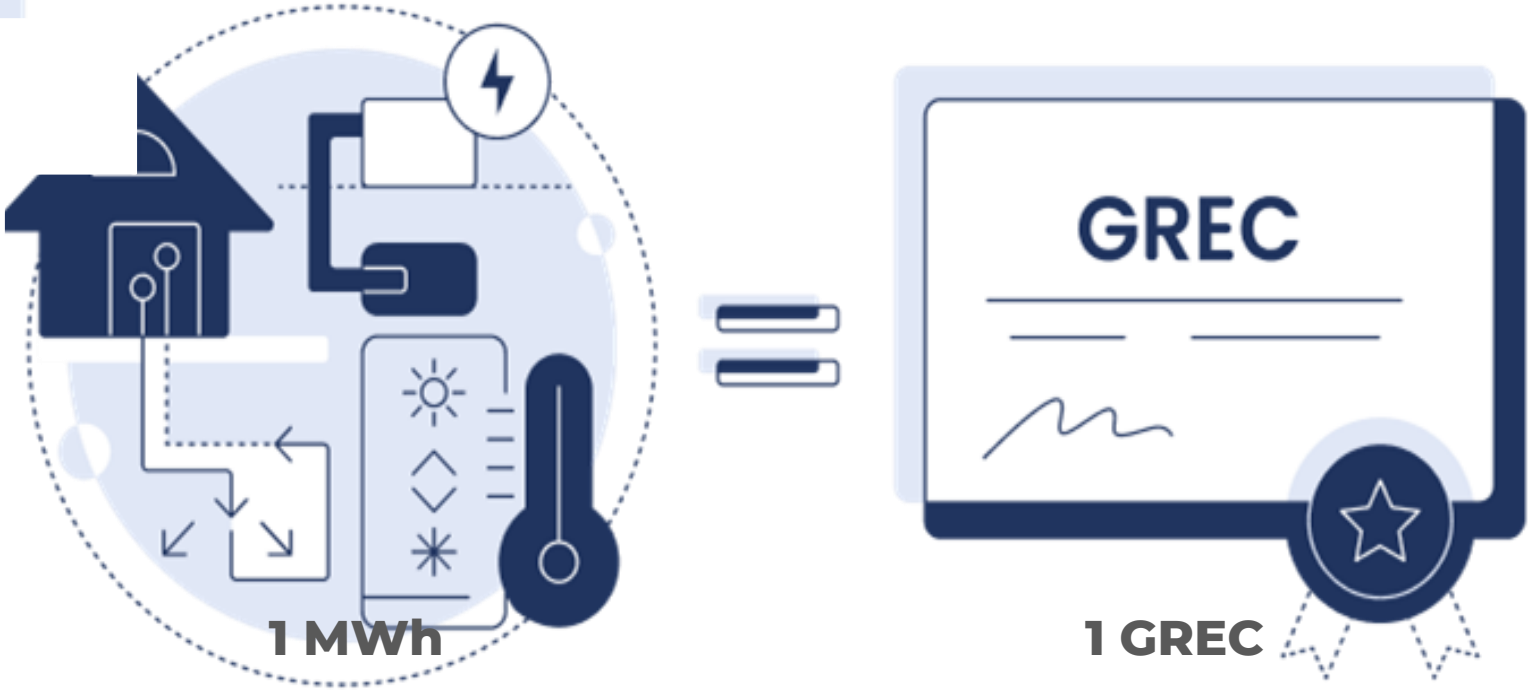
Moderator
NY-GEO -BOD

Kelcy Kline

Carbon Solutions Group

June 9, 2026

GRECs: Introduction to Renewable Energy Certificates



GREC 101

- Geothermal Renewable Energy Certificates (GRECs) are certificates that represent the renewable energy benefits produced by a geothermal heating and cooling system.
- RECs can be bought and sold separately from the energy itself.

Why RECS Exist?

- Utilities and companies purchase RECs to meet renewable energy

Who Benefits?

Participant	Benefit
Homeowner	Additional revenue stream
Installer	Additional value proposition for customers
Utility	Compliance with renewable energy requirements
State	Encourages adoption of clean energy technologies

REC Process

1. Geothermal (GSHP) system commences operation

2. System applies and receives certification from RPS administration (meets eligibility)

3. System is registered with regional tracking system

4. RECs are minted and transacted (by aggregators or brokers)

GREC Calculation Methodologies

GRECs are generally calculated by comparing the energy required to meet a building's heating and cooling load using a geothermal system versus a defined baseline system, with state-specific inputs and assumptions.

Factors in GSHP REC Calculations (vary by methodology):

- Building Characteristics (square footage, climate, insulation)
- Baseline System Type (fuel oil, propane, gas, electric, etc.)
- Baseline Equipment Efficiency
- Geothermal System Performance (COP/EER, capacity)
- Energy Required to Meet Load (geothermal vs. baseline)
- State-Specific Adjustments (conversion factors, modeling tools)

GREC Status

State	Program status	Classification	Overview
MD	Active	Tier 1 geothermal carve-out (GREC)	**Adopted:** 2012 (GSHP added as Tier I) Expanded in 2021 carve-out law (HB 1007) **Notes:** • Tier I Legacy systems: in service ≤ Dec. 31, 2022 • GREC New carve-out: systems in service ≥ Jan. 1, 2023
PA	Active	Tier II through Demand-Side Management / Energy Efficiency No carve-out	**Adopted:** 2004 **Notes:** • AEPS framework with geothermal/DSM pathways, not a dedicated GSHP carve-out
VA	Passed; program under development	Tier 1 geothermal carve-out (GREC)	**Adopted:** 2024 (SB 508) **Notes:** • Eligible starting 2025 compliance year • Operational framework effective Jan. 1, 2026 (SCC rules)
IL	Passed; program under development	GREC block program	**Adopted** 2025 (SB 252) **Notes:** • Geothermal Homes and Businesses Program under IPA review • The GHBP starts in the delivery year beginning June 1, 2028 • Eligible systems must be new systems in service ≤ June 1, 2026

GREC Value and Calculations

State	ACP / Value Structure	Methodology of Calculating REC Quantity
MD	Post-2022 geothermal carve-out: 2025 $100 2026 $90 2027 $80 2028+ $65 Pre-2023 systems: 2025 $25	*GREC = Energy savings (difference) between a baseline heating and cooling system(s) and the GSHP; as determined by use of the Climate Master Energy Savings Calculator*
PA	2025 $45 Current benchmark is 10% Tier II by 2021 and beyond.	*AEC = Capacity of system * (1/Baseline efficiency - 1/GSHP efficiency) * Correction factors.* *Only electric baseline systems are considered, so there is no crediting for fossil fuel-based heating systems (i.e. gas furnaces).*
VA	SB252 sets a $100/MWh effective cap for GRECs, but only if supply is available at or below that price. Otherwise utilities can fall back to standard RECs under the $45 ACP.	*Proposed correction:* *GREC = (Performance rating - 1) * (non-geothermal kWh used by the pump)* *GREC = (COP/EER - 1) * (1 / COP or EER) * (Energy delivered by system); repeated for heating and cooling and summed.*
IL	No ACP structure in the proposal. The bill proposed annual blocks of GREC volumes with block pricing instead.	*Proposed formula to match VA's corrected:* *GREC = (Performance rating - 1) * (non-geothermal kWh used by the pump)* *GREC = (COP/EER - 1) * (1 / COP or EER) * (Energy delivered by system); repeated for heating and cooling and summed.* *Proposed methodology language: "Eligible geothermal renewable energy credits shall be the product of the performance rating of the geothermal heating and cooling system and the energy usage of the geothermal heating and cooling system needed to serve the space heating and cooling and/or water heating load required by the building."*

Maryland Market Case Study

Maryland GREC Market: Early-Stage but Demonstrating Measurable Activity in Official RPS Data

- Maryland is the leading GSHP carve-out model: HB 1007 created a dedicated Tier 1 geothermal carve-out that ramps from 0.05% (2023) to 1.0% (2028+), including an LMI set-aside and defined ACP structure.

- The program is active and generating compliance activity: the PSC reports 1,134 geothermal facilities and 53,721 GRECs tied to 2024 compliance, with post-2022 GREC pricing around $94/REC.

- Early success, but still supply-limited: Maryland’s 2024 geothermal obligations exceeded available retirements, confirming both real demand and a need for more project supply.

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THANK YOU!

Ryan Dougherty	Brian Ferrarese	Donovan Gordon	Kelcy Kline
			
GEOExchange	Dandelion Energy	Moderator NY-GEO -BOD	Carbon Solutions Group

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September 15

INVESTMENT TAX CREDITS – ITC

A Practical ITC Roadmap for GSHP Projects

WALKER BLUE

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