Package Deals:
Energy As a Service

Presented Live at the NY-GEO 2023 Conference Albany, New York on April 27, 2023

Moderator:

Venetia Lannon / *Con Edison*

Panel:

Tony Amis / *Endurant Energy*

Matthew Piscopo / *Brightcore Energy*

Johnny Fry / *Celsius Energy*

Matthew Tokarik / *Subterra Renewables*

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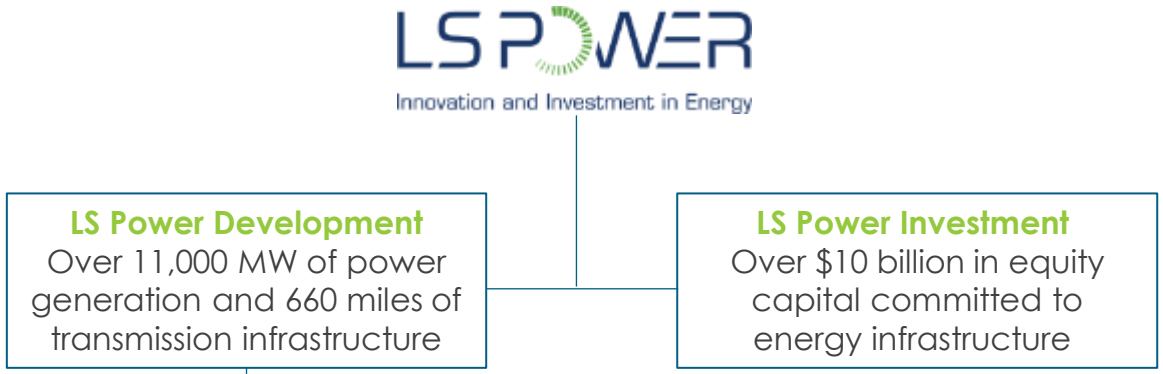
Delivering Geothermal Solutions with Energy As A Service

Tony Amis

Senior Vice President

NY GEO April 2023

Endurant and our partnership resources



Endurant is owned by specialist private equity firm **LS Power,** whose dynamic portfolio covers all our clients' strategic energy needs.

https://www.lspower.com/about-us/

endurant

On-site generation development & financing. Technologies include energy storage, geo-exchange & microgrid controls

GEOptimize

Energy modelling and geo -exchange design team

EVgo

The nation's largest public fast-charging network for electric vehicles

REV RENEWABLES

Nationwide utility-scale renewables and energy storage

CPower

Demand response, efficiency, distributed energy/storage, peak demand management

Endurant Energy's Offering

Solutions

- Energy Master Planning
- Building and Development Modelling
- Project Feasibility Studies

Financial Structuring

- Asset Ownership
- Coordinate financial structure
- Joint Venture Ownership
- Capital Structuring

Engineering & Design

- Develop and Manage Projects
- Development Support Services
- Incentive Coordination
- Exterior and Interior Ground-Loop Design
- Equipment Sizing and Specification
- HVAC System Integration

Construction & Installation

- Full EPC Solutions
- Build Assets
- Project Management
- Startup Services
- Quality Assurance Oversight
- Coordination Between Trades
- Equipment Commissioning

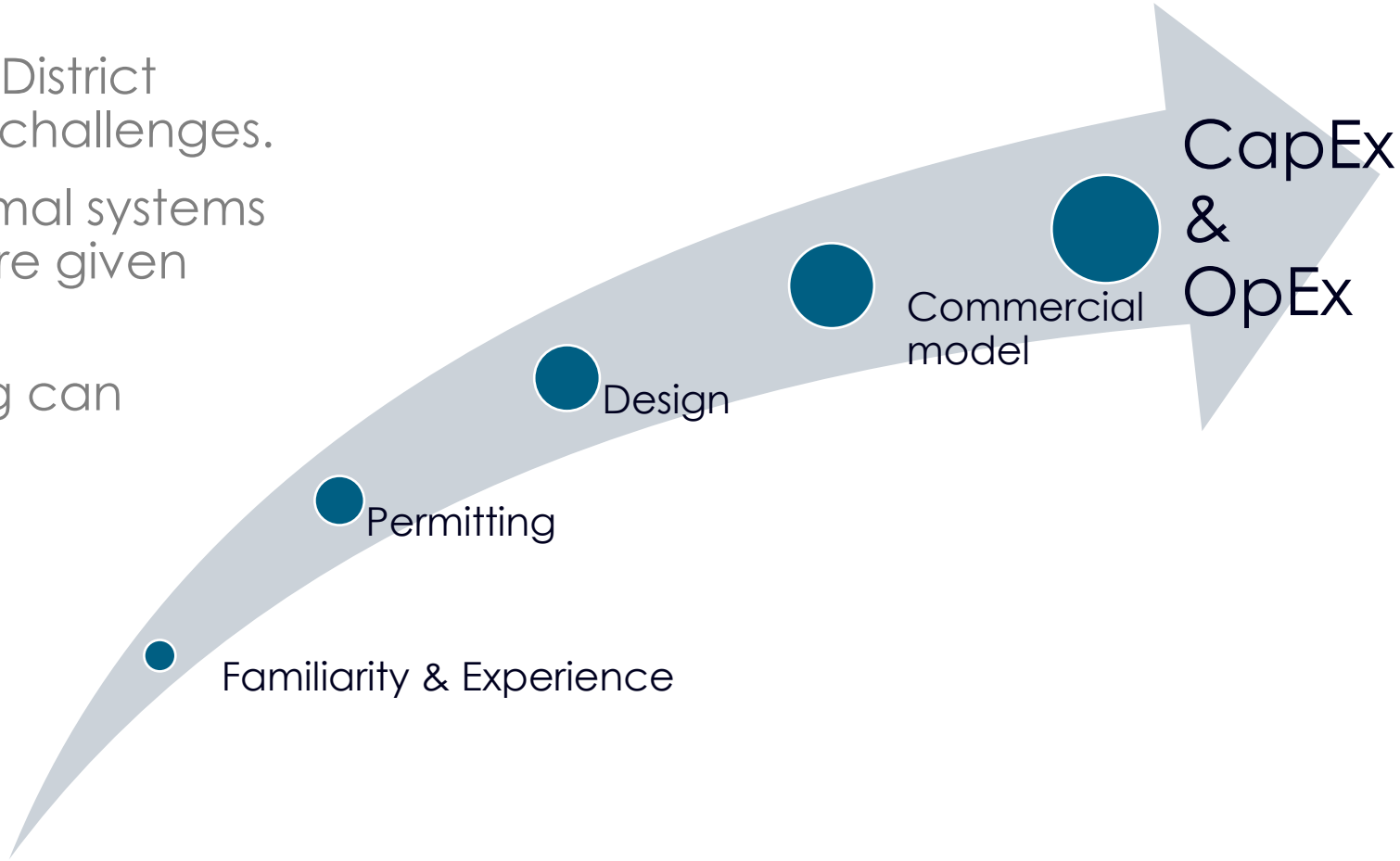
Services

- Procurement Services
- Manage Energy Assets
- Operate Projects
- Maintain/Service Projects

5 P's - Why planning?

Setting the scene – getting the customer comfortable

- Geothermal systems especially District systems present several unique challenges.
- If not overcome early, geothermal systems may be rejected before they are given genuine consideration.
- Incentives and project planning can present solutions.
- CapEx V OpEx - LCCA

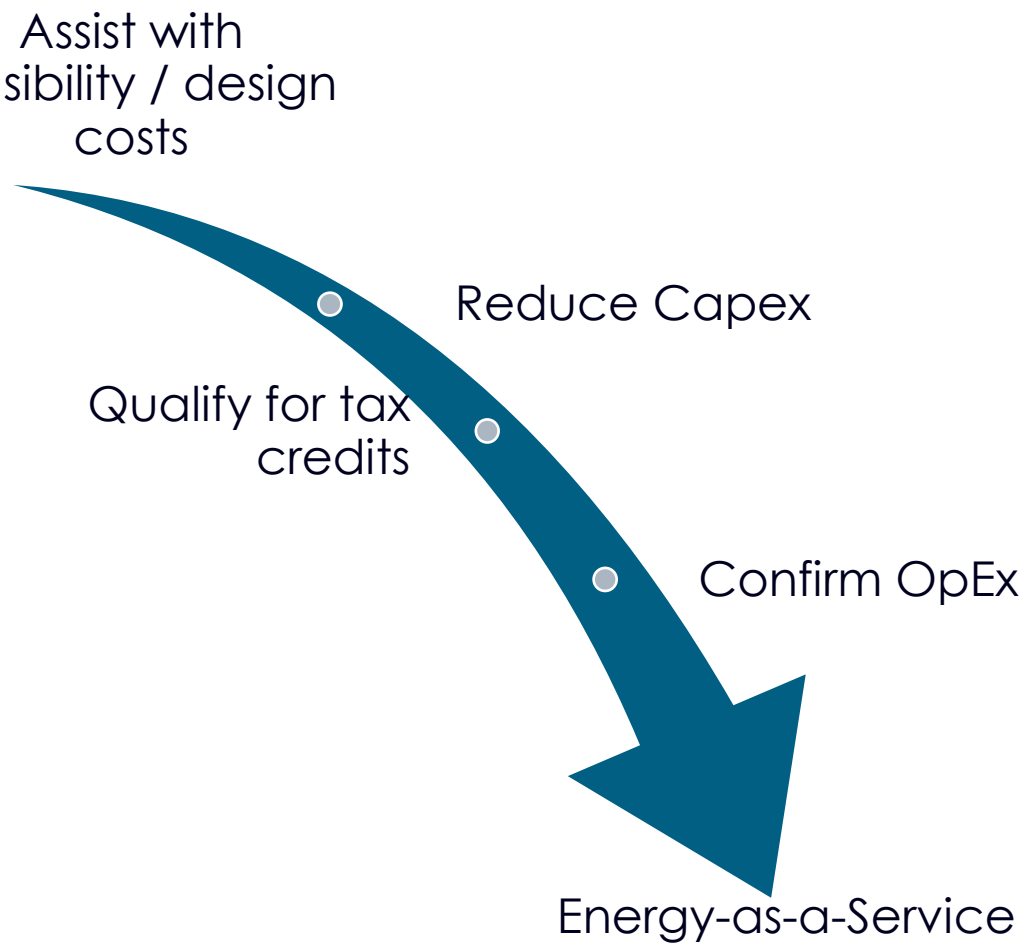


Overcoming challenges

Building confidence

Overcoming these challenges is essential to unlocking the future benefits that geothermal and district systems can offer:

- Reduced operating costs
- Improved system efficiency
- Efficient systems to support the transition to building electrification



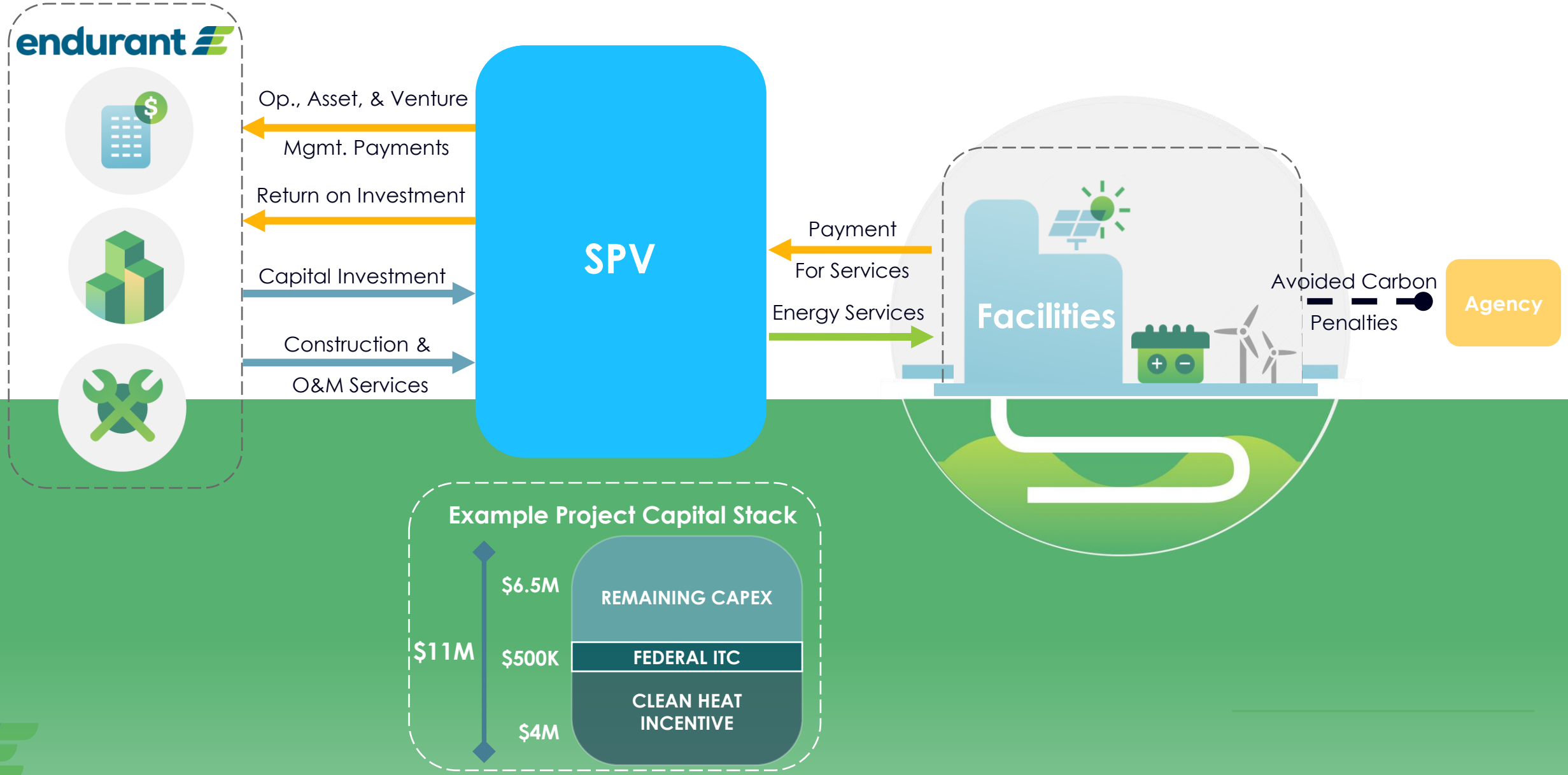
What is Energy-as-a-Service (EaaS)?

Energy-as-a-Service is a comprehensive approach to energy development and long-term management. It may include a wide array of services and is tailored to meet the specific needs of a client and project

Endurant Provides **renewable energy asset development** (design, build, own, operate, optimize, maintain) for the following technologies and services:

- Ground source and air source heat Pumps
- Solar
- Storage
- EV Charging
- Fuel Cells
- Combined Heat and Power
- Demand Management
- Energy supply contracts

How is EaaS structured?



Benefits of Energy-as-a-Service

EaaS is a full-service energy solution that allows customer to remain focused on its core business while reaping the benefits of specialized energy solution that can help customers achieve their energy goals

✓ **Eliminate Capital Investment**	Endurant funds 100% of the capital for the Project, eliminating the need for budgetary provisions
✓ **Fixed Energy Pricing**	Endurant's fixed-price energy contract effectively hedges long-term energy costs over the EaaS term
✓ **No Operations and Maintenance Expenses**	Endurant wears the risk of all operations and maintenance expenses which are covered under the EaaS price
✓ **Energy Savings**	All on-bill savings accrue to Customer
✓ **Performance**	Endurant is fully accountable to the customer for construction and performance through availability, performance and/or operation date guarantees
✓ **Off Balance Sheet Financing**	Opportunity to classify the EaaS as an 'operating lease' in conformance with (ASC 842) guidelines, a consideration for the maintenance of low debt-to-equity (D/E) and leverage ratios
✓ **Regulatory**	Endurant is responsible for obtaining and complying with applicable permits and interconnection agreement

Thank you

Tony Amis
Senior Vice President
tamis@endurant.com

GEOTHERMAL

RENEWABLE HEATING & COOLING SOLUTIONS

Brightcore

BUILDING ENERGY PERFORMANCE™

THE MOST EFFICIENT BUILDING ELECTRIFICATION SOLUTION IS RIGHT UNDERNEATH YOUR FEET

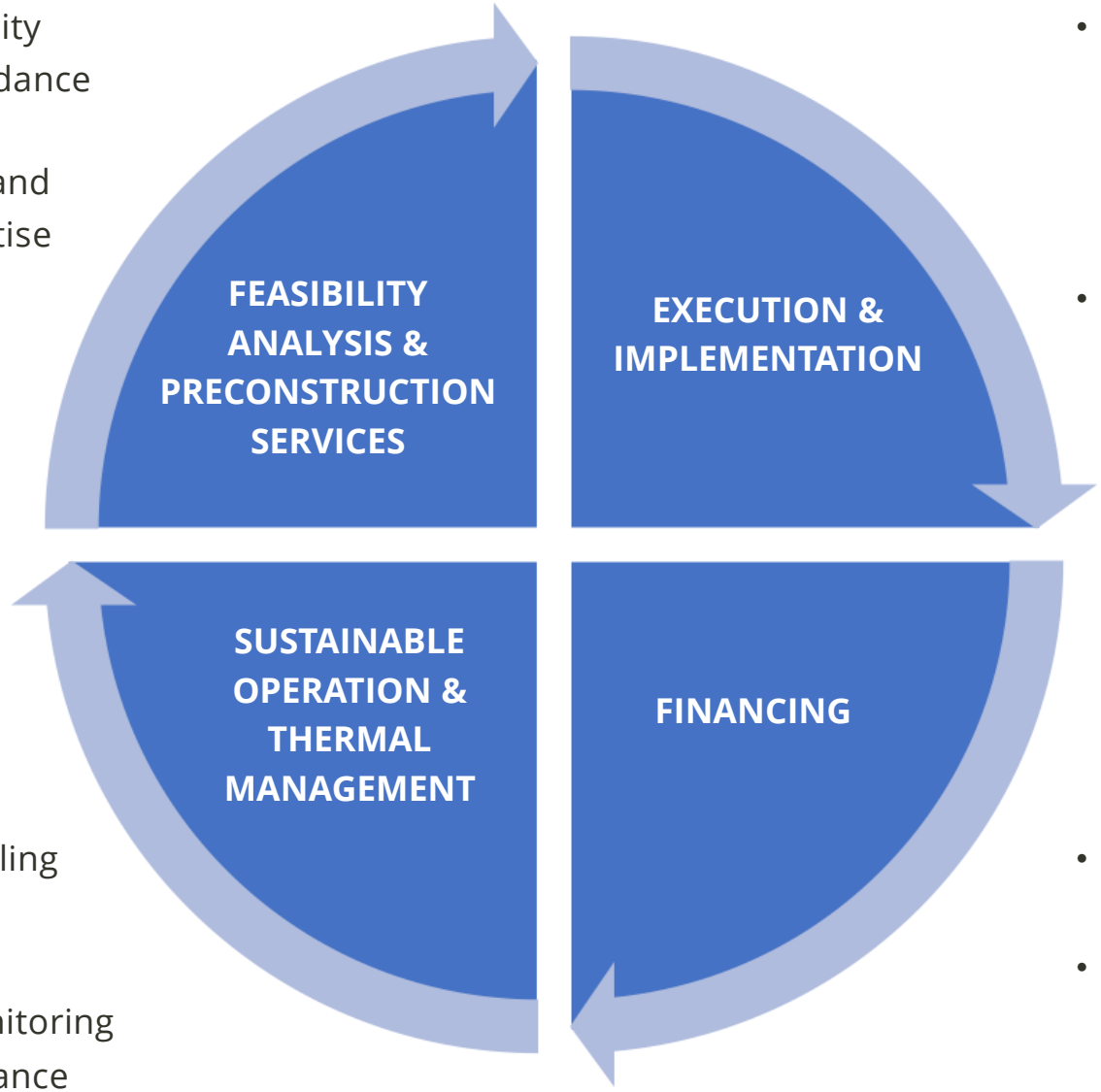
Brightcore
BUILDING ENERGY PERFORMANCE™

- ✓ TURNKEY MODEL
- ✓ TECHNICAL EXPERTISE
- ✓ IN-HOUSE DRILLING
- ✓ INNOVATION
- ✓ ENERGY AS A SERVICE
- ✓ FINANCIAL STRENGH
- ✓ LOCAL PRESENCE

UNIQUE GEOTHERMAL BUSINESS MODEL

IN-HOUSE ENGINEERING & DESIGN, DRILLING, FINANCE AND ONGOING O&M

- Initial feasibility
- Incentive guidance
- In-house engineering and design expertise



- Brightcore drill rigs: conventional and innovative (incline, water hammer, electric, etc.)
- In-house licensed master drillers

- Energy modeling and asset optimization
- Ongoing monitoring and maintenance

- Geothermal-as-a-service
- In-house capital

LIGHTING
AS A SERVICE

- Comprehensive upgrade of 7,500 lighting fixtures to LED technology at JetBlue's Terminal 5 at JFK Airport
- Over 65% reduction in electricity usage from lighting (2.5MM kWh per annum)
- Project funded through Brightcore's Lighting as a Service program, requiring $0 investment from JetBlue

Brightcore
BUILDING ENERGY PERFORMANCE™

jetBlue

jetBlue

SAVINGS ANALYSIS

ESG IMPACT OF THE PROJECT

Reduction of more than 2.1 million kWh of energy usage per annum which is equivalent to:

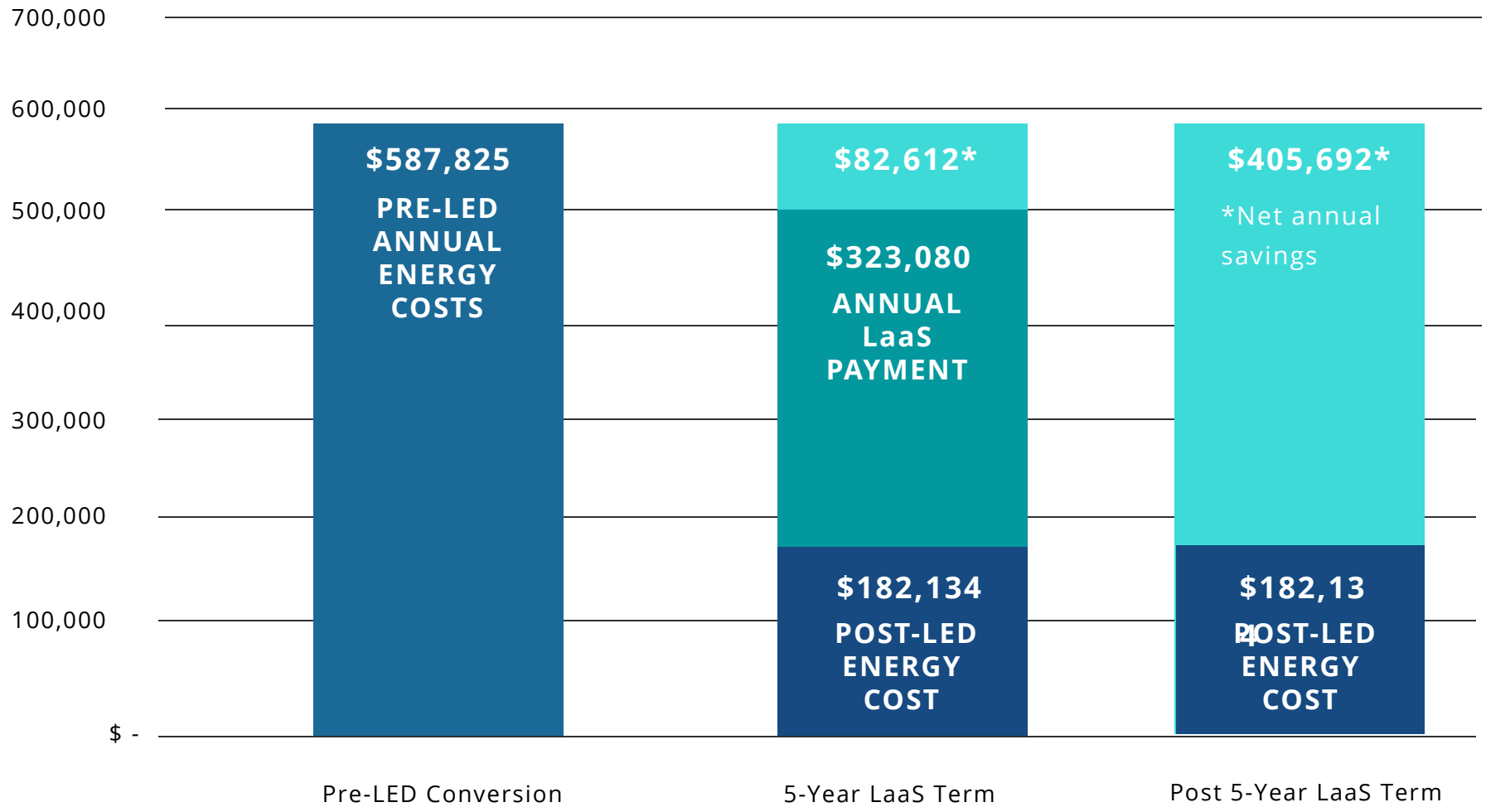
609 MT CO2e

68,527

Gallons of gasoline consumed

671,034

Pounds of coal burned



BRIGHTCORE TEAM

GEOTHERMAL DESIGN HIGHLIGHTS

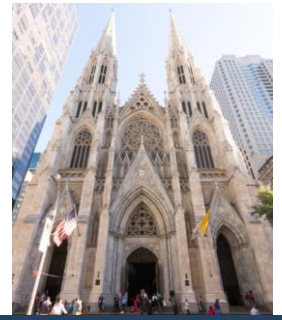
Client: The Beresford Cooperative at 211 Central Park West, NY
The Beresford is a legendary landmark multi-family building built in 1929. This installation is projected to reduce peak cooling demand by 18%. In addition, this solution will provide heating while using 60% less energy than an equivalent air source heat pump system. This proposed geothermal system will reduce GHG emissions by over 40%.

Client: 1 Java street: A premiere Lendlease waterfront property in the Greenpoint section of Brooklyn, NY
This will be the largest geothermal installation for a multi-family building in New York, with more than 300 boreholes drilled to 500 feet. Brightcore was selected for this project because of their proprietary specialized drilling technology.

New Construction Client: L & M Development, Beach Dunes II
Low energy loads associated with Passive House designs allow for the installation of 36 boreholes to a depth of 450 feet. In total, there are 150 water-to-air ground source heat pumps and in-unit high-efficiency ERVs. Considering the PSE&G geothermal incentives, O&M savings, and the elimination of cooling towers, the project is estimated to be cash positive in less than 2 years. **Brightcore team member: Dave Hermantin**

New Construction Client: Cornell Tech, New York, NY
The Bloomberg Center is the main academic building that was able to achieve Net-Zero energy certification with a geothermal well design. The closed-loop ground source system was installed underneath the building with 80 boreholes drilled to 400 feet deep. This system provides 265 tons of cooling and is all-electric. **Brightcore team member: Dave Hermantin**

Retrofit Client: Town of Darien at 1441 Post Rd, Darien, CT
The library sees more than 350,000 patrons visit each year and needed to replace the existing HVAC system to serve the building. A geothermal system was installed underneath the building to provide 140 tons of heating and cooling. **Brightcore team member: Dave Hermantin**



Client: The Archdiocese of New York at 5th Ave, New York, NY
The Archdioceses selected a standing column well geothermal system to replace the conventional HVAC configurations.The geothermal system reduced the building energy usage by more than 30% and saved more than 207,000 lbs of GHG emissions.
Brightcore team member: Dave Hermantin

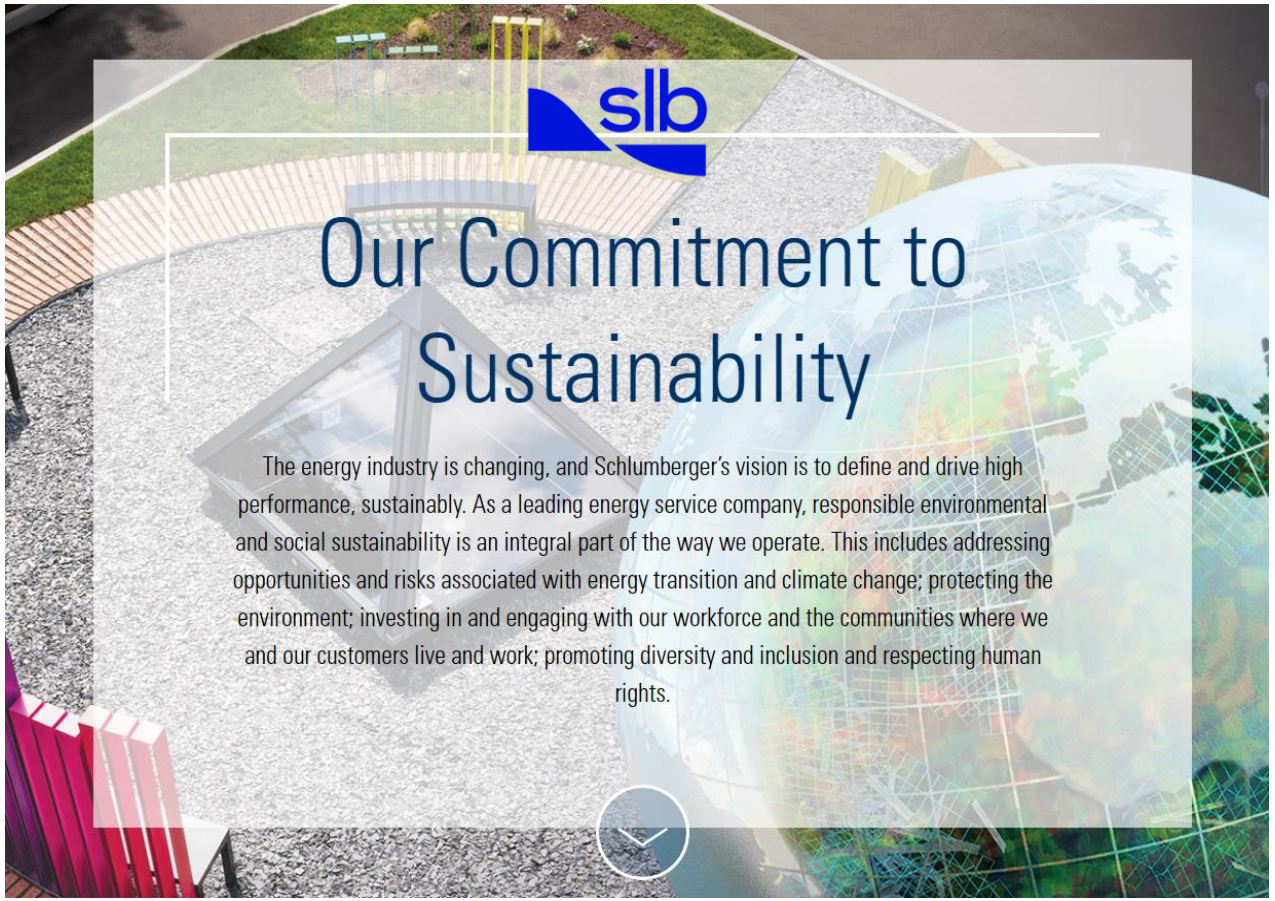
CELSIUS ENERGY

A Decarbonization Solution for Buildings

Johnny Fry – Business Development Manager
April 27, 2023

SLB **New Energy**

World leading technology provider for energy industry, driving innovation for a balanced planet

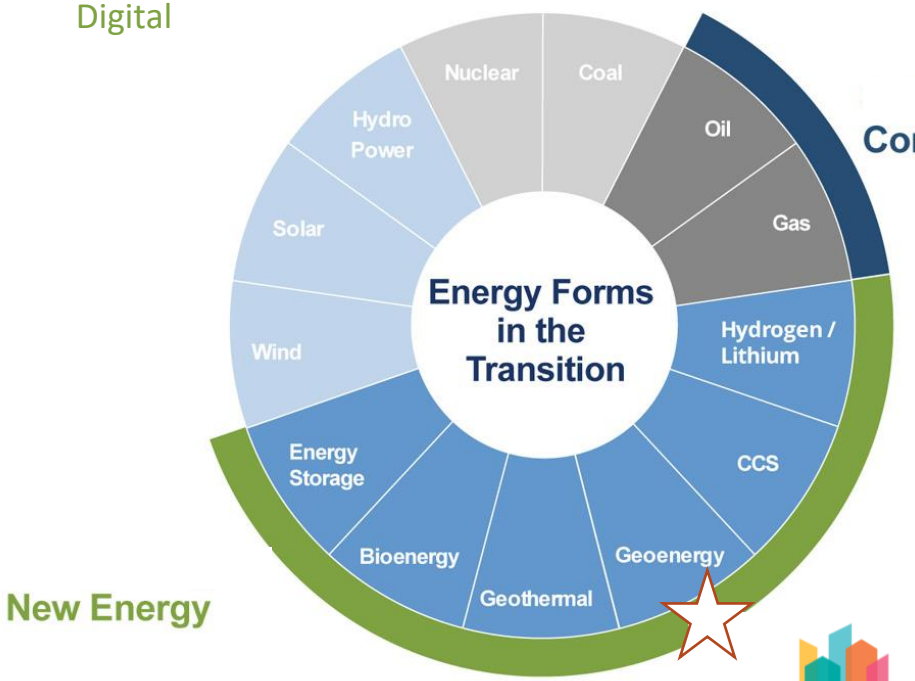


Characterization
Drilling
Production
Digital

90,000+
Employees

120+
Countries

$28B+
Revenue



CELSIUS ENERGY

Focused on **Scalability**

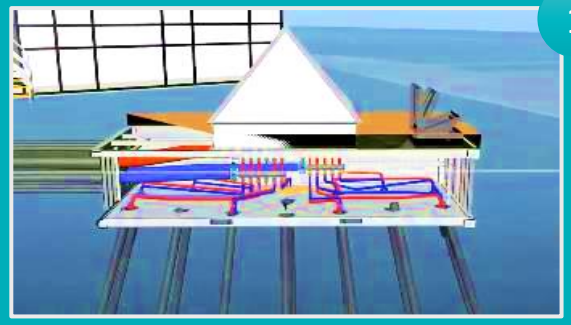
At Building Scale

At Community Scale

New & Retrofit

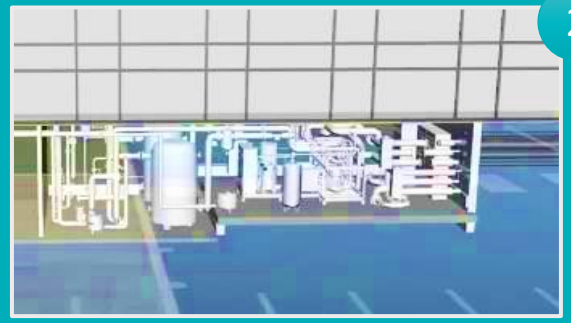
Energy as a Service

1



Underground Heat Exchanger

2

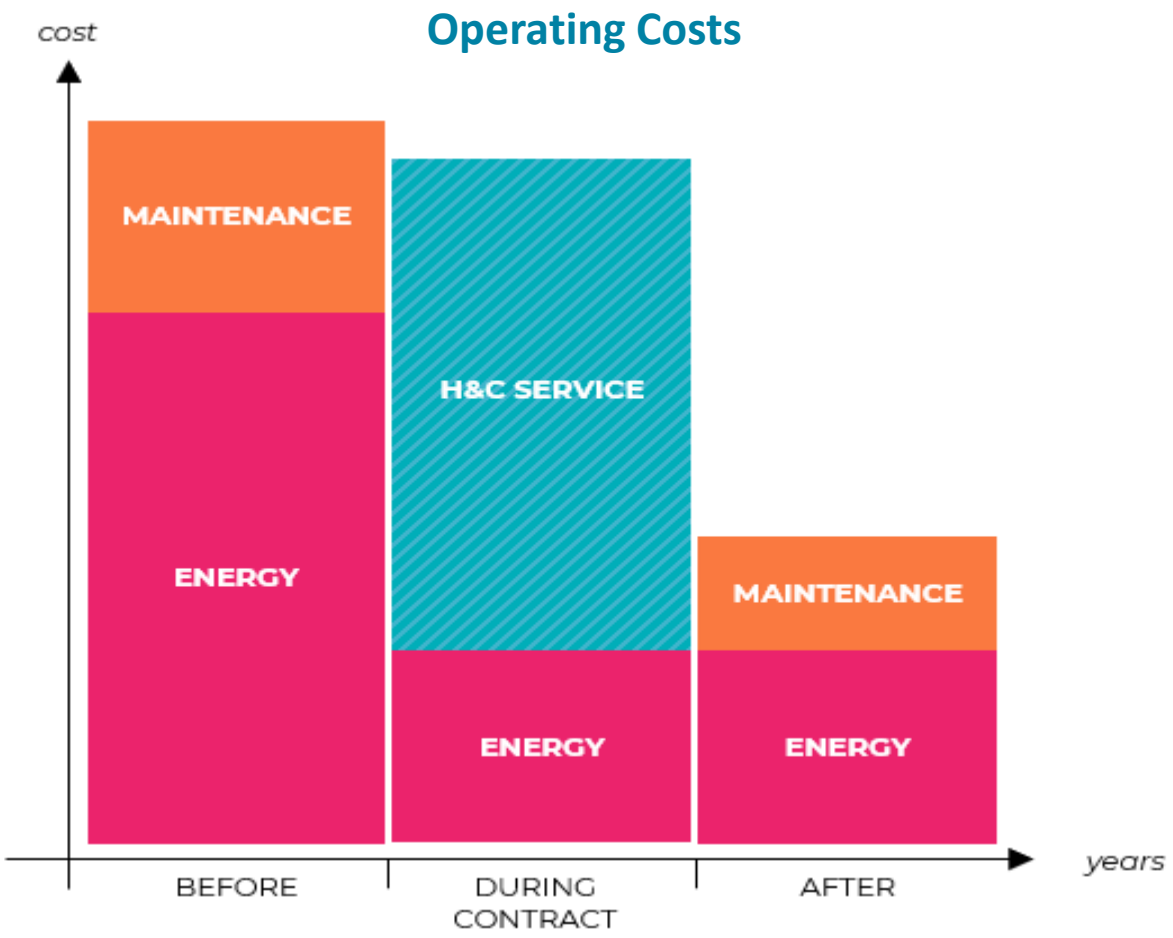


Connected Tech Room

3

Intelligent Performance Management

Geoenergy is **Accessible**



Energy as a Service Model

- Determine total project cost and projected operational savings
  - Applicable Federal/State/Utility incentives
- Define contract term (20-30 years)
  - 10% reduction in prior operating costs + maintenance
- Cost to finance depends on lending risk and contract terms
  - Fixed cost payback (preferred)
  - Fixed cost + energy use
  - Energy use only
- CAPEX and maintenance is owned by Celsius Energy (lender) during contract term
- At term end, asset is transferred to building owner/COOP
  - Full realization of operating cost reduction
  - Future maintenance is also transferred

Energy as a Service

2023 NY-Geo Conference
April 26, 2023
Matthew Tokarik, MASc, PEng
President, Subterra Renewables

Geothermal Exchange System Cost–Benefit Overview

While governments are implementing strategies to move toward net-zero buildings, continuously rising construction costs make it challenging for owners to finance the upfront costs of sustainable solutions.

There are various considerations in reviewing the financial viability of a geothermal exchange system. There may be government tax credits or other financial incentives geared toward net-zero buildings. Some financial institutions also offer green loans.

Owners also need to consider the cost impact of not implementing a geothermal system; for example, escalating natural gas prices and increasing carbon taxes can be major factors.

Of course, the environmental cost of greenhouse gas emissions is paramount. Geothermal exchange can provide a zero-carbon-emissions solution.

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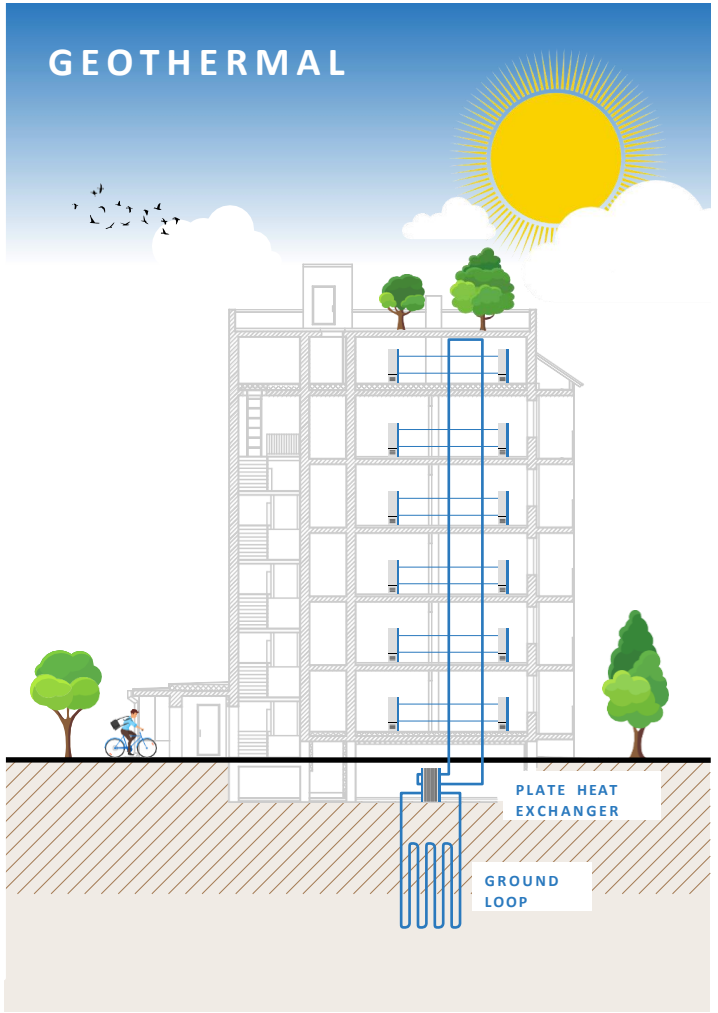
Rethinking the Mechanical Room

By removing conventional equipment such as boilers and chillers, the mechanical room is reduced in size. The geothermal exchange system requires an average of 400 ft^2 to house the pumps needed to circulate the fluid through the ground loop heat exchanger and the building. Eliminating conventional equipment also minimizes maintenance costs.

Eliminating fossil-fuel-based space heating equipment such as boilers, chillers, and cooling towers allows for additional building height or rooftop amenities.

In a condominium, the penthouse space can be increased up to 70%, resulting in more livable space. The value of gross floor area is especially significant in cities where space is at a premium.



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Geothermal Exchange - Space Savings

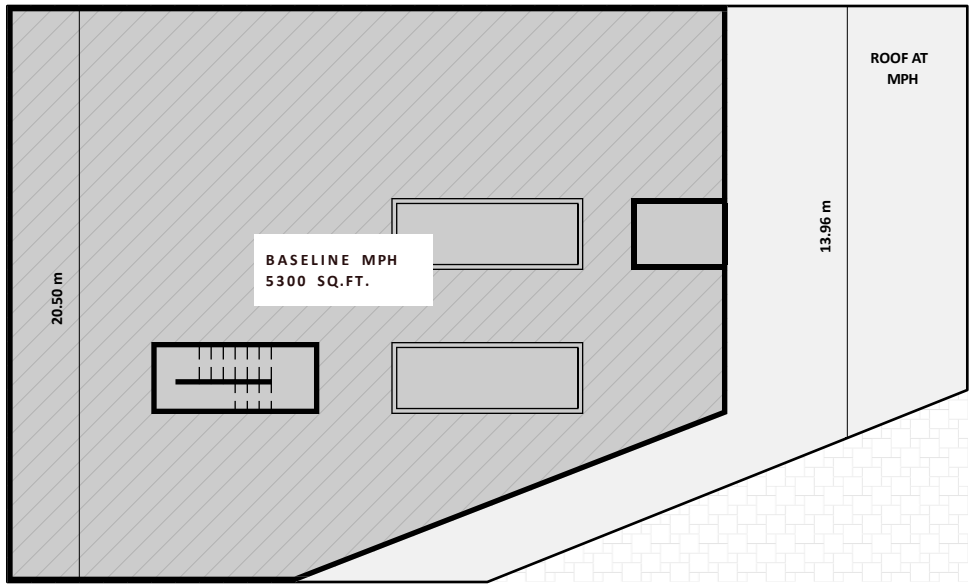
The space savings can result in increased saleable space and/or amenities.

Up to 70%
Space Savings

Additional
3800 sq. ft.
Value $4.5M

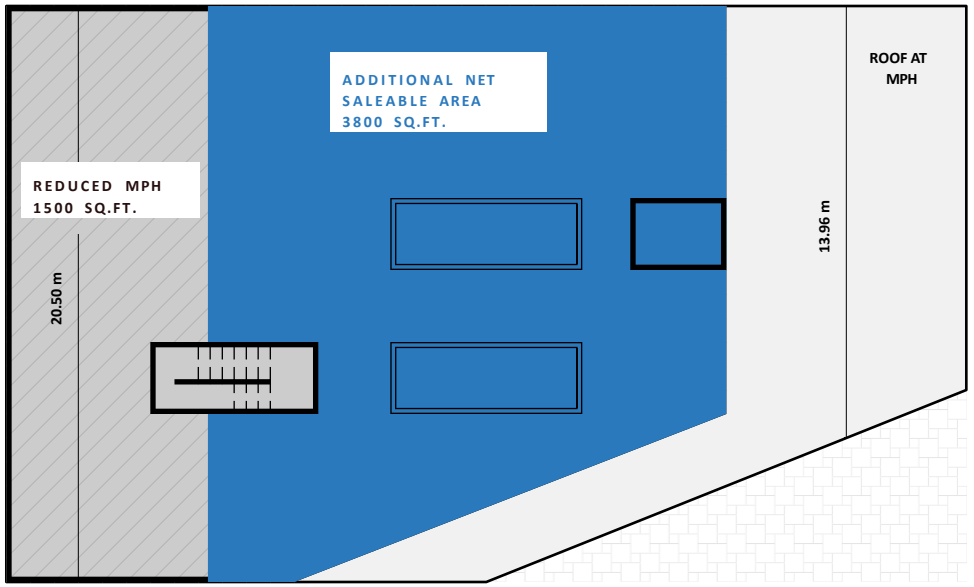
Based on $1200/sf

OPTION 1 - CONVENTIONAL HVAC



*Mechanical room space not useable

OPTION 2 - GEOTHERMAL SYSTEM



* Available space

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RENEWABLES

aura™

Securing Tomorrow.

Energy as a Service.

Green Buildings. Blue Skies.

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Energy as a Service

Energy as a Service allows developers to partner with a vertically integrated and experienced utility manager to unlock the value of geothermal exchange at no cost and no risk.

- Greenfield, Retrofit, or District
- Full Ownership or Joint Ownership
- Existing Geothermal Exchange Systems (Acquisitions)
- Complementing Sustainable Systems (Wastewater Energy)

What is Energy as a Service?

- Energy as a Service is also known as the Utility Model.
- An agreement whereby Subterra Renewables pays the upfront capital costs of the geothermal exchange system.
- An Energy as a Service agreement charges the project owner a **fixed monthly Renewable Energy Fee** and is signed for approximately 30 years.

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Energy as a Service Benefits

THE AURA ADVANTAGE

ZERO CAPITAL COST	Improved cash flow for developers / owners at project onset.
OPERATIONAL SAVINGS	Lower operating and maintenance costs / condominium fees.
OPERATING CASH FLOW	Fixed monthly energy fee provides predictable operating costs.
CAPITAL RESERVE REDUCTION	Reduced capital expenditure reserve.

Exclusive of Tax Incentives

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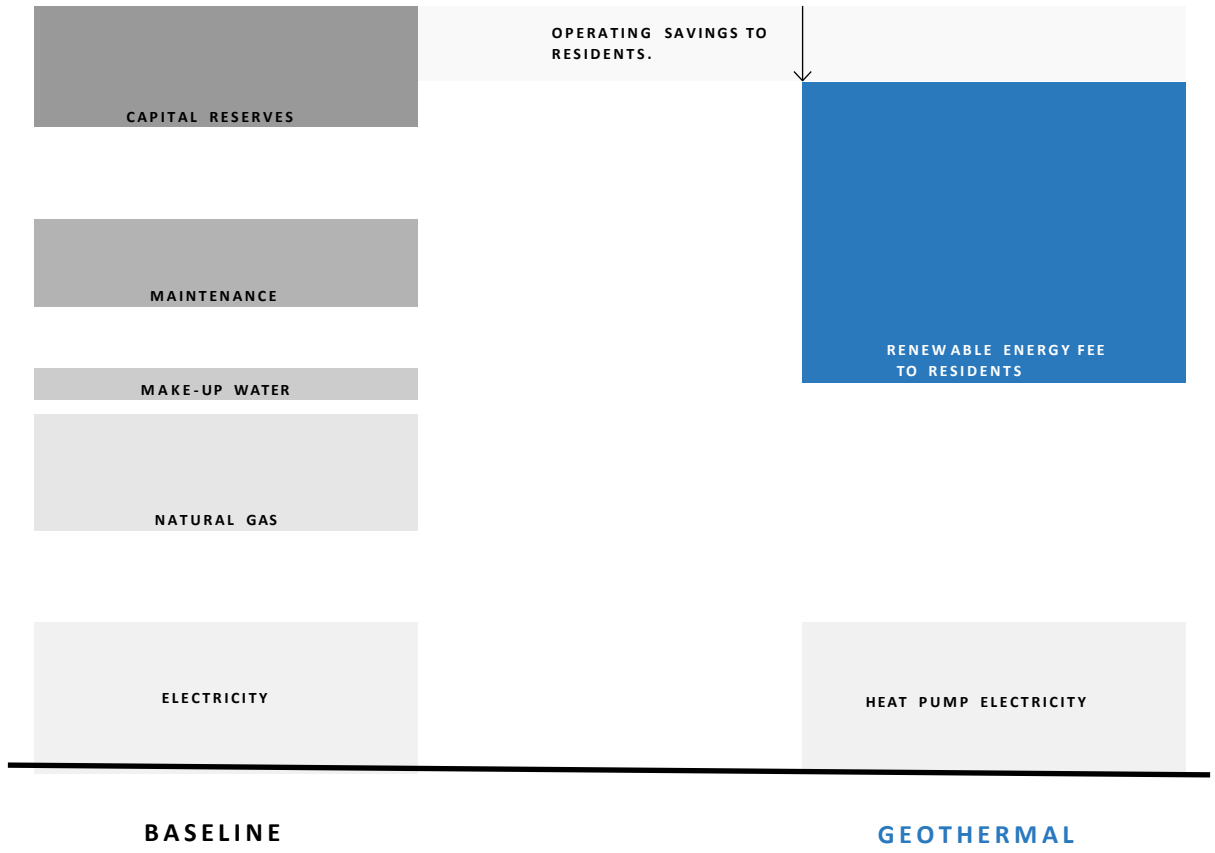
Energy as a Service – Operational Savings

The Renewable Energy Fee will be less than the annual costs of a conventional system and includes:

- Feasibility, design and build of system.
- All thermal energy (BTUs) supplied by the field, without surcharges.
- Operation, maintenance, and regular servicing.
- Replacement and repair of all components.
- Building automation through state-of-the-art controls that proactively manage Aura and the borefield's temperature to ensure system performance and thermal comfort for residents.
- Warranty for the duration of the agreement.



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Energy as a Service - Feasibility and Design

What is included in Energy as a Service:

Feasibility and Design

- Based on **Energy Modelling**, an evaluation of mechanical plant size and geofield design and size is developed.
- **Borehole Test** is conducted to determine with certainty the drilling price and to complete the preliminary geothermal exchange system design.
- **Thermal Conductivity** test is also completed.
- The geothermal exchange **Design** is completed by a team of experts including prequalified engineering firms and Subterra engineers.

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Energy as a Service - Construction

What is included in Energy as a Service:

Construction

- Confirmation of construction considerations and on-site responsibilities.
- **No impact to critical path** if using drill-from-grade technology.
- Drill-from-grade method enables excavation to proceed normally.
- Drilling platforms not required for rigs.
- Excavation, backfilling, and compaction to connect ground loops with mechanical room.
- Underground piping is connected to mechanical manifolds in mechanical room.
- System is flushed, filled, and **commissioned.**

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Energy as a Service – Operation & Maintenance

What is included in Energy as a Service:

Operation and Maintenance

- Leverage state-of-the-art technology that actively manages system operations and building temperatures with web-enabled sensors optimizing flow rate with real-time system diagnostics.
- Maintain long-term system health and maximize productivity.
- Institutional shared knowledge from greater portfolio.
- Continuous iterative CO2 reporting.

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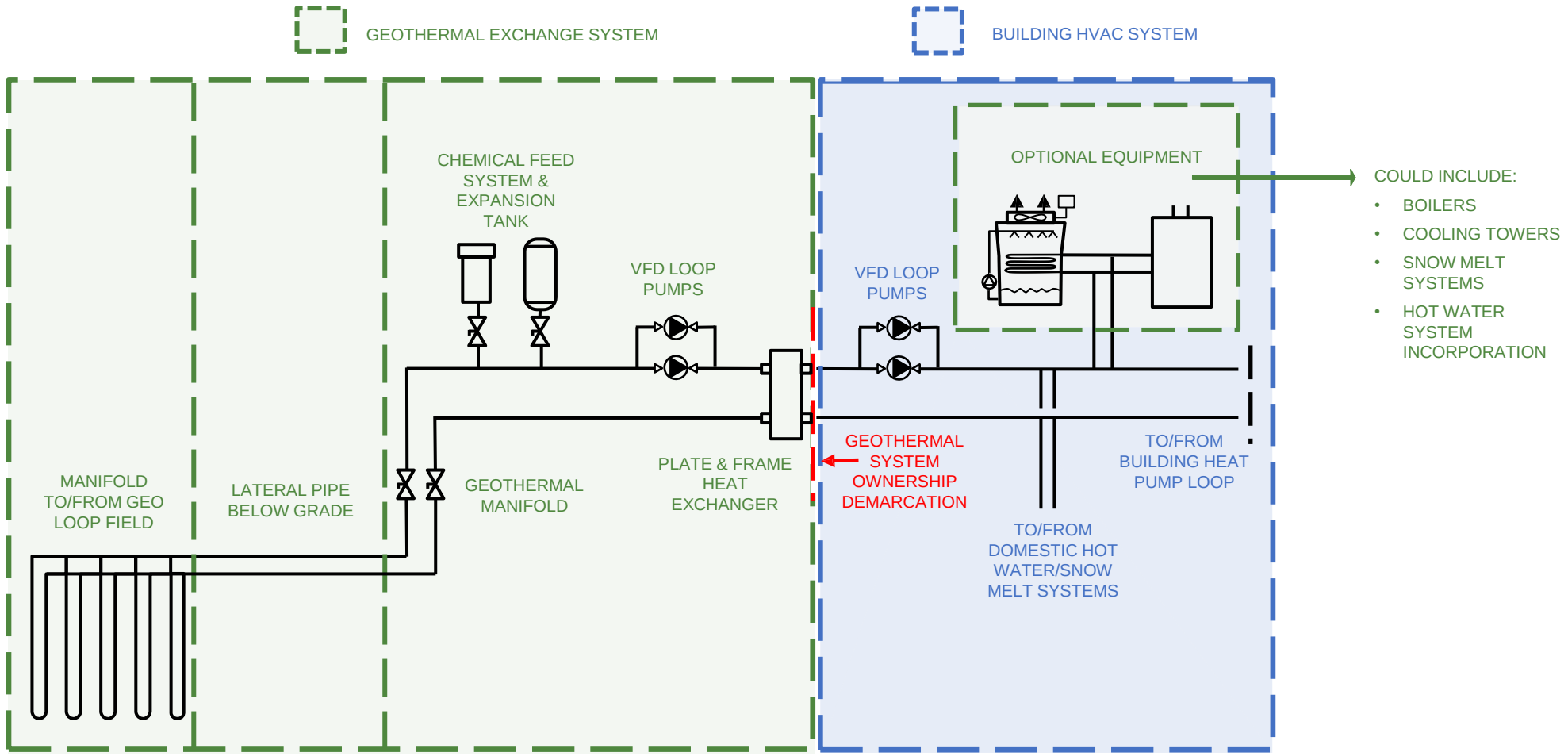
Geothermal Exchange System Demarcation



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Thank You!

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