



# **NgenX Energy**

## **Energy Enlightened**

NGENX ENERGY POWER AND  
THERMAL SOLUTIONS OFFERING

09-30-2024



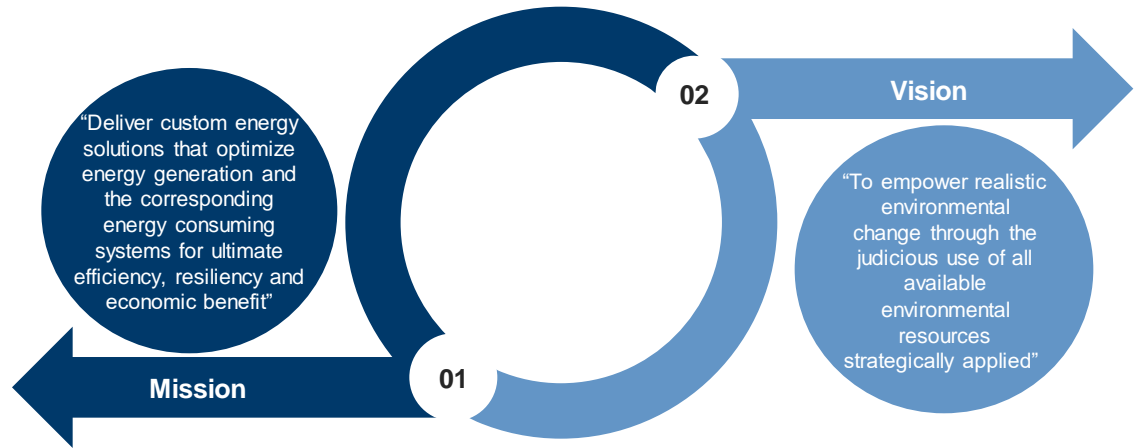
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# Company introduction – Who we Are

## Description

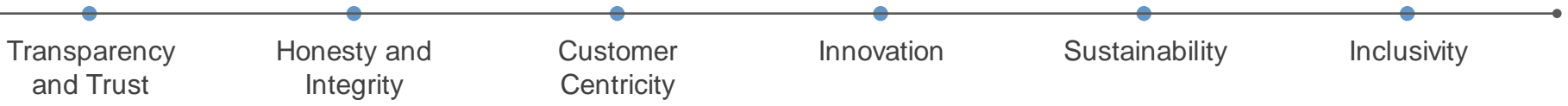
- Design build development firm focused on clean on-site power and thermal energy generation for energy dense applications
- Technology agnostic solution provider delivering custom energy solutions
- Trusted customer partner managing construction of energy optimized facilities and energy solutions



## Company information

<b>Founded date</b>	➤	August 1, 2018
<b>Founders</b>	➤	Charles J Miller
<b>Headquarters</b>	➤	New Hope Pennsylvania
<b>Website</b>	➤	Ngenxenergy.com
<b>Legal name</b>	➤	Ngenix Energy LLC (dba as NgenX)

## Core values



# Key facts



**1050K+**

Controlled  
Environment/DC  
Construction square  
footage

**210M**

Capital deployed  
by NgenX Team

**34+**

Years of focus on  
energy industry

**118186**

Run hours on our  
first installation

**92**

Technology and service  
partners. The right people  
for the right job.

**650M**

Capital Available  
through strategic  
investment partners

# Business model – What We DO

## Key Partners

- Capstone Microturbine Corporation
- E-Finity DG
- Gruppo AB
- NES-WES Systems (Innio)
- Pennoni Engineering
- KMB Design Group
- Burns and Macdonald
- IM Data
- Delta 9
- Inspire HVAC Solutions
- GBI (Grow Better industries)
- Scale Microgrid Solutions
- Bostonia
- CoGen Power
- Concord Engineering

## Key Activities

- Realistic Feasibility
- Project Development
- Data Driven Concept Design
- Data visualization
- Construction Management
- Project Funding
- Project Commissioning
- ITC Reconciliation

## Key Resources

- Data Visualization Modeling
- Financial Modeling
- Technical Partnerships
- Employee Solutioning Team

## Value Propositions

- Rapid Deal Evaluation
- Data Driven Design
- Programmatical Development Experience
- Holistic Conceptual Design
- Technology Agnostic Solution Development

## Customer Relationships

- Iterative Collaborative Design
- Business Process Design Integration
- Lifecycle Business Planning

## Channels

- Multiple independent development channels
- Technology partner referral approach
- Web and Social media presence
- Educational communications

## Customer Segments

- Traditional MUSH
- Industrial
- CRE and Hospitality
- Data Center as a vertical
- Cannabis as a Vertical
- Indoor Agriculture
- Sustainable Development
  - BIOgas, RNG,H2

## Cost Structure

- Development Fees
- CM Services
- Modeling Development
- Product Commissions
- Technology Resale

## Revenue Sources

- Development
- Design and Engineering
- Technology markup
- CM Service and Project Management
- O&M and ongoing monitoring
- Product White Label resale

# NgenX Leadership



THE TOP 100 **INNOVATORS**  
and *Entrepreneurs*

## Charles Miller

“ The solutions we’re providing genuinely help people in need.

Charles Miller knows energy. With over 30 years in the energy space, he has spent his entire career solving problems by creating custom engineered solutions. In 2018, he founded NgenX Energy and Environments, an energy development company, and while it’s definitely not his final opus, it may be—for now—his magnum opus. With NgenX, Charles takes a holistic approach to energy consumption and delivery, crafting solutions to create better operational environments and improve profitability for companies large and small. “Our tagline is, *Energy Enlightened*. It really is our gospel,” he says. “We look at energy from a different perspective; it’s not just electrons, it’s not just BTUs, it’s how all these things work together to create the most efficient system possible. Our years of experience and partner relationships are what differentiates us from the competition. Innovation is the key to our success.”



Charles’s knowledge and expertise come from varied sources within the industry. He has designed software for nuclear power plant simulations, and managed engineering and project development teams for construction, critical infrastructure, and renewable energy applications. However, the common frequency harmonizing all of his experiences has been his continuous search for new opportunities, new technologies, and new ways of integrating those technologies into solutions for his customers by analyzing the big picture.

NgenX works with technologies on the cutting edge of power generation throughout the U.S., Canada, and the Caribbean, targeting energy efficiency across multiple vertical markets. In some cases, such as data centers and the emerging cannabis market, they’ve helped their customers reduce energy costs by as much as 50%. A common application in the NgenX approach is combined heat and power—reclaiming the heat generated from onsite power generation and leveraging that heat in other operational processes. Using new and existing technologies and a network of experts, NgenX creates customized, optimal solutions for their clients—but they aren’t stopping there. With their CEAPOD product, they’ve created a global solution for indoor agriculture. These controlled environment pods can be paired with a fuel source and placed in areas where fresh produce is not readily available. “It’s given us the ability to grow fruits and vegetables anywhere in the world,” Charles explains. “The solutions we’re providing genuinely help people in need.”

*Charles Miller received his B.S. in mechanical engineering from The Catholic University of America, and his MBA in international business from La Salle University/John Hopkins University.*



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# The NgenX UVP



01

Data driven solutioning. Conceptual designs driven by fact and data

02

Technology and service agnostic. The best technology with the best team for the job

03

Unique visibility of development team. Engineers with business and finance perspective

04

Tenure. Senior development team with over 35 years of energy focus

# Controlled Environment Solutions

Whether it's a Data Center, a Greenhouse, or an Operating room, the ability to maintain reliable power and environmental control is critical to the success of your operation. NgenX offers power and thermal solutions that provide efficient and reliable power and thermal energy with inherent redundancy in design for your critical operations

## Solution Portfolio

Custom engineered critical power and thermal development Data Center solutions up to 50 MW

Modular pre constructed Data Center from 200KW to 10MW

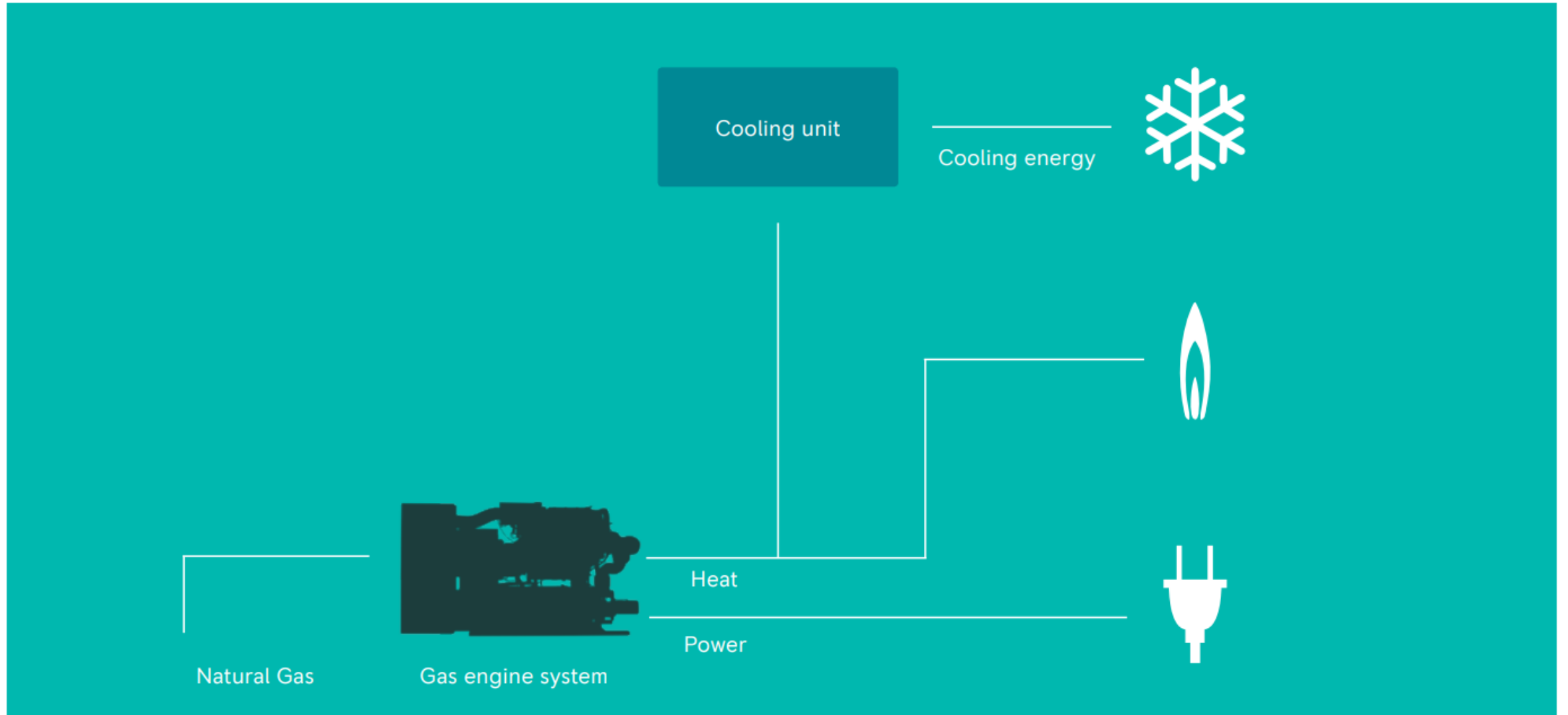
Modular Grow environments with CEAPod™ technology

Financed third party ownership structures bringing the Utility to you





# CHP Simplified



# NgenX's CHP Approach

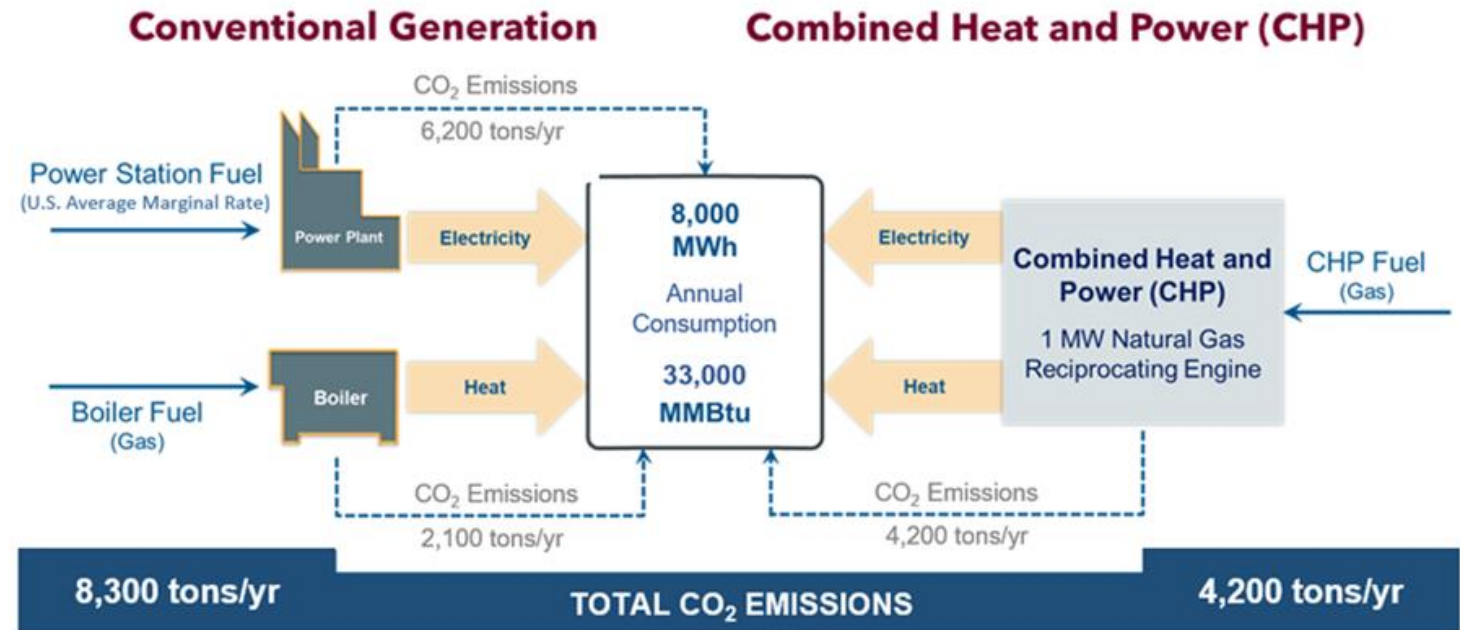


- NgenX promotes **Combined Cooling Heat and Power**, which repurposes the heat generated by electric production to provide either hot water or chilled water.
- CHP is a tried and true, low-risk technology investment that can typically yield **12% to 15% unlevered return on investment**.
- NgenX has coupled marquee technology providers into a **unique CHP solution for energy intensive industries**.
- The NgenX approach is **scalable from 65 kW up to 50 MW**, and provides reliable on-site primary power and cooling, with inherent redundancy, and with optional CO2 capture.

# Supporting Green Generation

- Whether carbon reduction is a mission critical strategy or not, the application of combined heat and power significantly reduces facility carbon footprint
- \*Compared to conventional generation and cooling approaches, the NgenX approach to energy reduces overall carbon footprint by nearly 50%
- For customers struggling to achieve ESG goals, CHP is a mechanism that can jump start customer initiatives
- Coupled with RNG as a generation fuel, CHP can reduce or eliminate carbon footprint due to the negative carbon impact of RNG

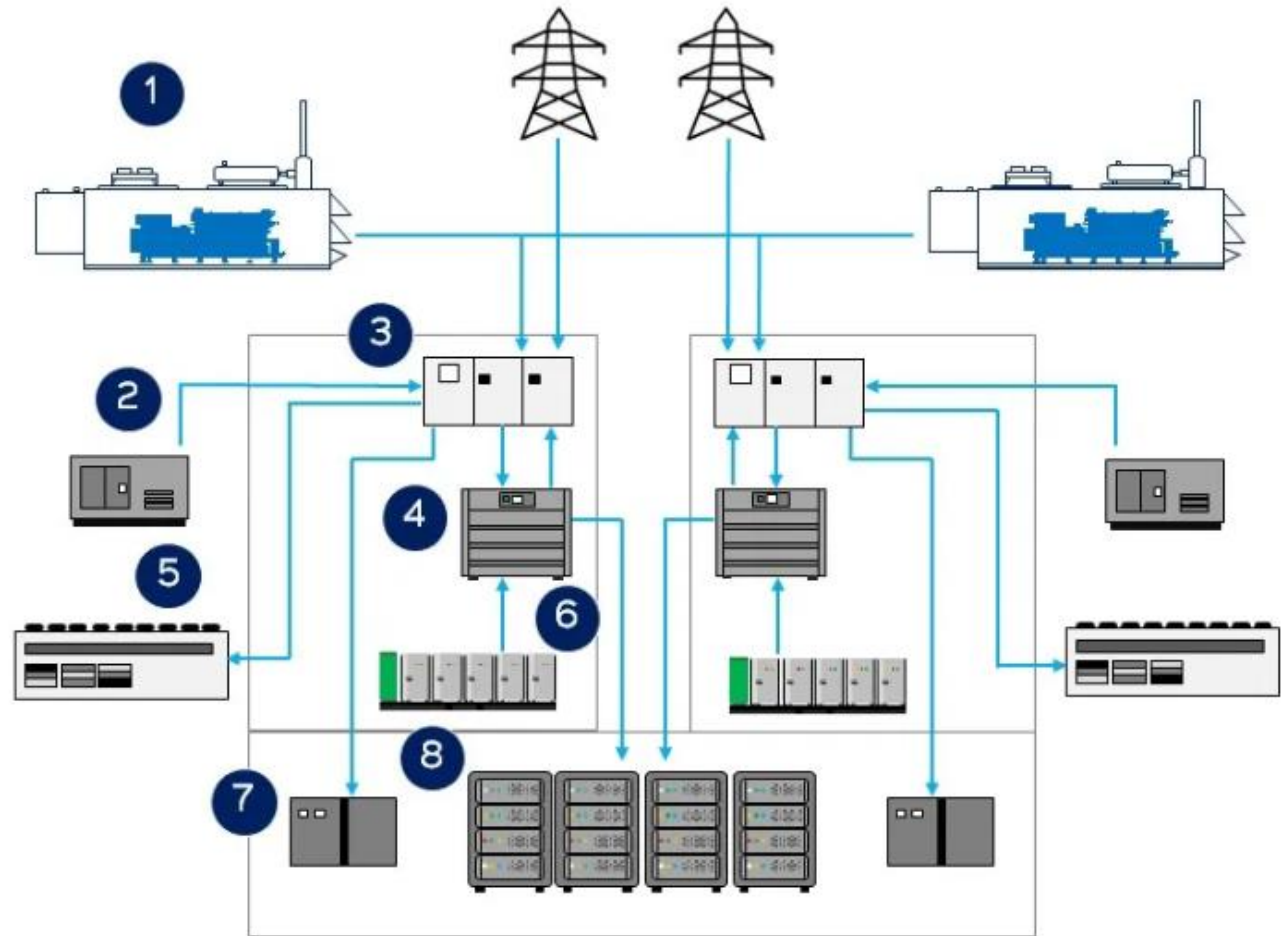
\*\* RNG is produced by capturing methane emitted from the breakdown of organic wastes in landfills, wastewater and farms. When methane emissions from these organic sources, which would have otherwise escaped into the environment, are instead captured, processed and converted into natural gas, they receive a credit for having not been released into the environment.



## Striving for negative carbon impact

## NgenX Data Center Solutions Approach

- 1 Containerised Gas Engine
- 2 Standby Diesel Generators
- 3 Automatic Transfer Switch
- 4 Uninterrupted Power Supply
- 5 Absorption Chillers
- 6 Power Chillers
- 7 Battery Energy Storage Systems
- 8 Control System
- 9 Servers/Storage/Network Equipment



NgenX solutions initiate with a detailed understanding and model of your specific requirements. Implementing a multivariate model enables us to fully understand the implications of your operational parameters and design a solution that will provide the energy and resiliency that you r business demands

FINAL REPORT 01.23.2024

**FACILITY ENGINEERING AND OPERATIONS ANALYSIS**  
PANTHEON GROW - MOORESTOWN NJ

18,000	Total Building SF	480	Flower Lights
9,000	Grow Room SF	125	Veg Lights
7,700	Flower Canopy SF	16	Clone lights
3.8	Flower to Veg Ratio	3.0	Veg to Clone Ratio

SYSTEM	COST SCALE \$/SF	TOTAL COST \$M	OP EX \$/SF	ELEC kWh/SF	ELEC YR kWh/SF	SOLAR NZE PV MW	SOLAR SCALE PV\$/SF	SOLAR FARM PV ACRES
Traditional DX	\$379	\$6.8	\$119	52	622	9	80	70
Air-Chiller	\$443	\$5.0	\$106	45	539	8	56	61
Water-Chiller HR	\$466	\$5.4	\$95	41	492	7	51	55
DX Heat Recovery	\$428	\$7.7	\$89	39	465	7	48	52
CHP 1	\$286	\$5.0	\$37	38	461	0	0	0
CHP 2	\$301	\$5.4	\$28	20	244	0	0	0
CHP 3	\$301	\$5.4	\$26	21	248	0	0	0



**Selected System Type**  
(Onsite Power) CHP Combined Heat and Power w/ Heat Recovery + Gas Driven Chiller w/ Heat Recovery + Heat Driven Chiller

**HVAC Information**

System Type	CHP 2
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**Cost Summary**

Funded	Yes
Cap Ex (Build)	\$5,500,000
Op Ex (M&M)	\$1,500,000

**Electrical Information**

Voltage	460
Phase	3
Est. Amps	630
CHP kW	0.6
E Production	100%

**Facility Information**

Location	NE
Canopy/SF	1,920
Flower Rm	2
Flower Rooms	4
Veg Rooms	2
Clone Rooms	1
Flwr Rm SF	1,400
Veg Rm SF	1,500
Clone Rm SF	300
Tot Building SF	18,000
Non Grow SF	9,100
Grow SF	9,000
Tot Canopy SF	7,700

**Grow Targets**

Grow Style	Custom
Gallons/SF	0.32
Watts/SF	56.25
Flwr L Watts	900
Flwr Light	120
Lb/Room	420

**Utility Summary**

Zip Code	08057
Grid ID	RFCE
Elec Utility	NJ Future
Elec \$/kWh	0.16
Gas Utility	NJ Future
Gas \$/Ccf	0.61

**Utility Cost Comparison**

E \$/MMBTU	46.9
G \$/MMBTU	6.0
G Rate Redn	10%

**Flower Room HVAC Summary**

Lighting kW	110
Cooling Tons	75
Dehumid GPH	32
Reheat kWh	340
Water/Dp	605

**Construction Estimate**

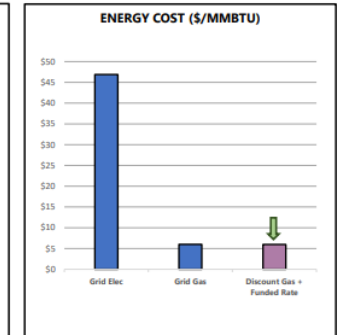
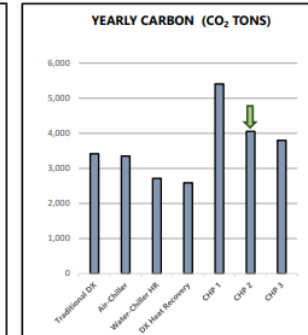
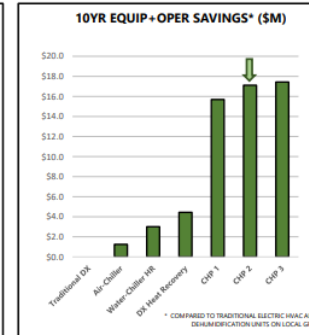
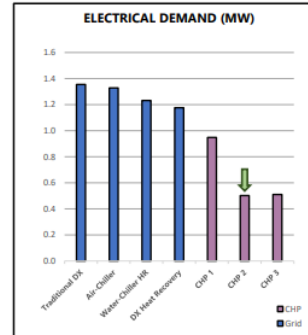
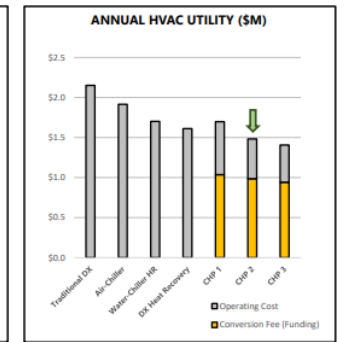
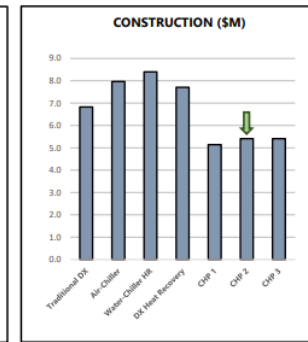
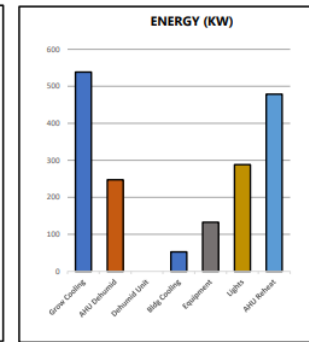
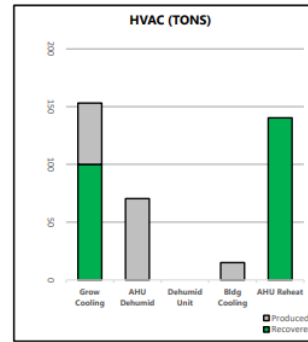
Buildout \$/SF	\$305
Equip \$/SF	\$305
Net \$/SF	\$305
Buildout	\$5,500,000
Funded	\$5,500,000

**Grow Performance Targets**

Grams/Wat	1.8
\$/LB (Retail)	\$60

**Facility Load Summary**

BaseLoad kW	440
CLG Tons	280
HTG kWh	2,500
Fert. GPH	3,200
R.O. GPH	9,600



# The NgenX Energy Plant

- For power solutions from 1 to 4 MW, NgenX utilizes a capstone Microturbine configuration to delivery reliable redundant power supply with the capability of recovering heat energy to produce heating or cooling.
- Generation can be fueled by a gas grid connection or stand alone from **LPG, LNG or Generated RNG** with equivalent effectiveness.
- In most instances, **generation costs are at or below grid parity**, yet the system provides clean on-site generation for a lower carbon footprint and inherent resiliency of power design with redundancy built into the modular approach.



# Generation Technology

- Turbine Solutions from 200Kw to 25MW
- Operates as a single scalable genset
- Resilient redundant design consideration
- Integrated N+ redundancy on both power and thermal
- UL2200 and CE Listed Technologies



# Generation Technology (ICE)

- Internal Combustion Engines from 320KW to 25KW
- Operates as a single scalable genset
- Resilient redundant design consideration
- Integrated N+ redundancy on both power and thermal





# The NgenX Energy Plant

- For power solutions from greater than 4MW and up to 25 MW NgenX offers the Solar Turbine Solution sized to need or a Jenbacher or Cat ICE offering with fast start as a reliable and redundant power solution
- Coupled with heat recovery similar to the Capstone derived solution, the Solar offering can enable modular solutions scaled to up to 50MW
- In most instances, **generation costs are at or below grid parity**, yet the system provides clean on-site generation for a lower carbon footprint
- Above 25MW solutions are custom engineered to account for power and thermal requirements

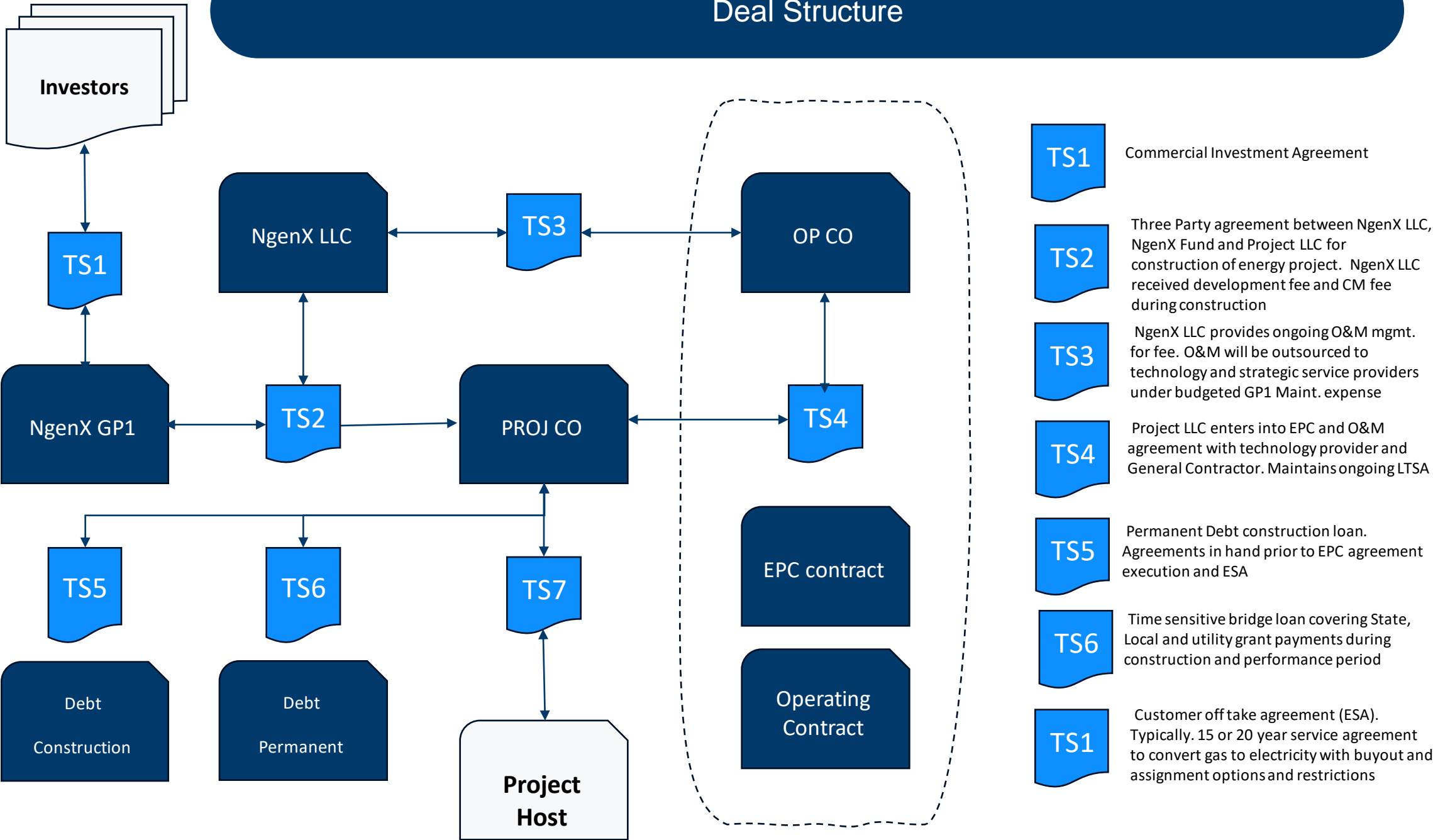
as well as market availability of product



# Capable of renewable microgrid integration



# Deal Structure



- TS1** Commercial Investment Agreement
- TS2** Three Party agreement between NgenX LLC, NgenX Fund and Project LLC for construction of energy project. NgenX LLC received development fee and CM fee during construction
- TS3** NgenX LLC provides ongoing O&M mgmt. for fee. O&M will be outsourced to technology and strategic service providers under budgeted GP1 Maint. expense
- TS4** Project LLC enters into EPC and O&M agreement with technology provider and General Contractor. Maintains ongoing LTSA
- TS5** Permanent Debt construction loan. Agreements in hand prior to EPC agreement execution and ESA
- TS6** Time sensitive bridge loan covering State, Local and utility grant payments during construction and performance period
- TS1** Customer off take agreement (ESA). Typically. 15 or 20 year service agreement to convert gas to electricity with buyout and assignment options and restrictions

# Contact us

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**Social media**

• **LinkedIn**

<https://www.linkedin.com/ngensex/>