



# NGENX Energy

## MODULAR POWERED DATA CENTER SOLUTIONS

01-10-2025

MODULAR DATA CENTER SOLUTION ASSESSMENT



- NGENX Energy has coupled marquee technology providers into a unique application for data center solutions
- Provides redundant resilient power coupled with modular IT infrastructure design
- Scalable from 65Kw to up to 300WM our solutions provide primary power and cooling with inherent redundancy married to a flexible IT
- Standalone modular Data Center and Landing Station supports custom configuration of racking and cooling options
- Solution is “plug and play” and includes all fully-integrated data center systems with IT and network racks powered up and server / switch ready. Power and Cooling availability assured with N+1, N+1+1, N+2 and 2N reliability
- All power, cooling, cable management, server racks, DCIM, fire suppression and security systems are factory installed, with the exception of the rooftop chiller plants that would be shipped separately and installed in the field or integrated to heat recovery modules providing chilled water as a generation by-product





## Powered Data Center Solutions for Edge Enterprise and Hyperscale

- Islanded or Bridge power getting you to operation **2 to 4 years before utility power**
- Turnkey Data Center design to your specification
- Integrated Power and Thermal Energy with heat recovery options.
- PUE as low as .94 for immersion cooled applications
- Power redundancy design delivers reliability greater than grid with N+2 Design resulting in 2N power when grid becomes available
- Utilization of recovered thermal energy to deliver 2.5MW of additional power to IT load for every 10 MW module
  - 10MW Modular Generation approach with thermal recovery delivers up to 8.8MW of IT Load

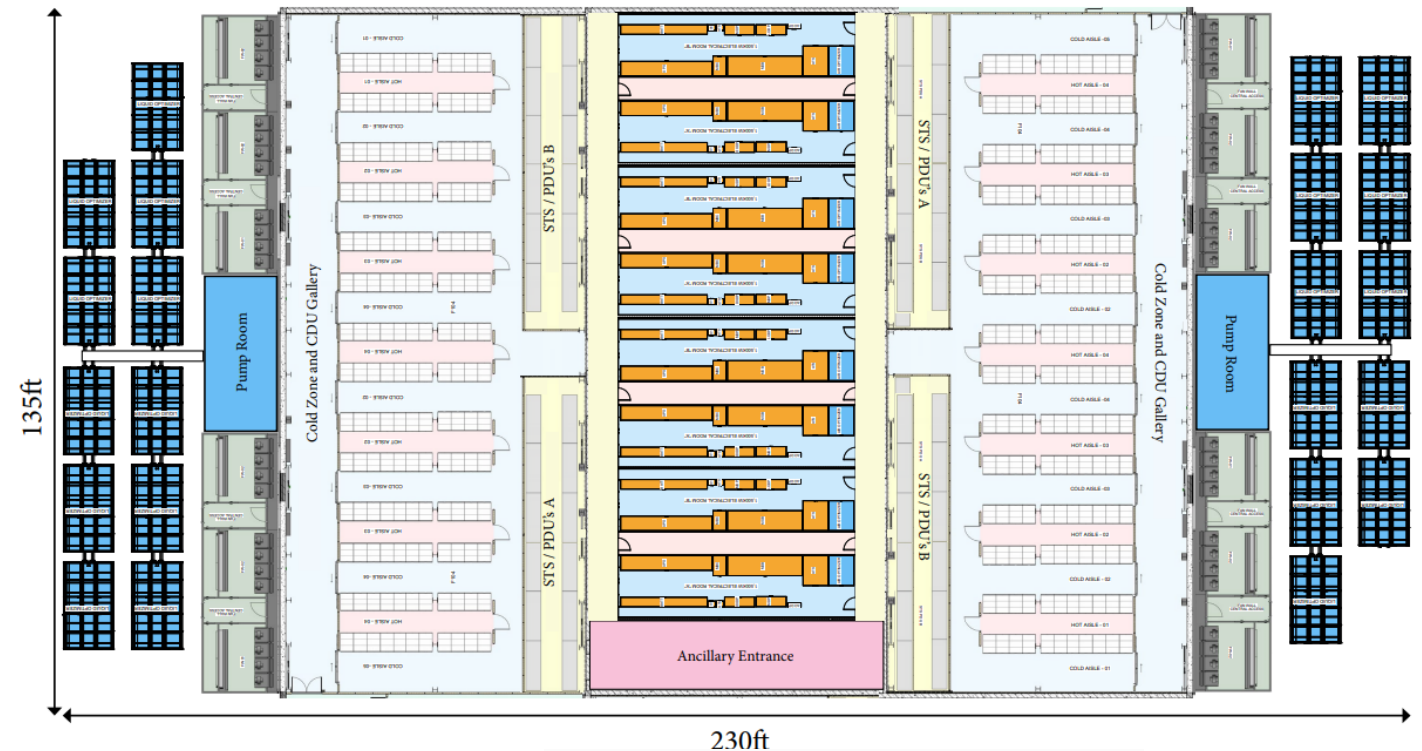


Ready to operate  
dropped in place  
with only a gas  
connection

The NgenX Power Integrated  
Modular Data Center  
incorporates redundant  
generation and potentially  
eliminates UPS in some  
instances. Full customizable  
racking and cooling  
configurations factory installed  
and validated prior to delivery

## 10MW AI Super Factory

Key Summary			
IT Cooling Capacity	Ancillary Cooling Capacity	Rack Spaces	kW / Rack
<b>10MW</b> 4MW Air (40%) 6MW Liquid (60%)	<b>2MW</b>	308	32.5kW / Rack

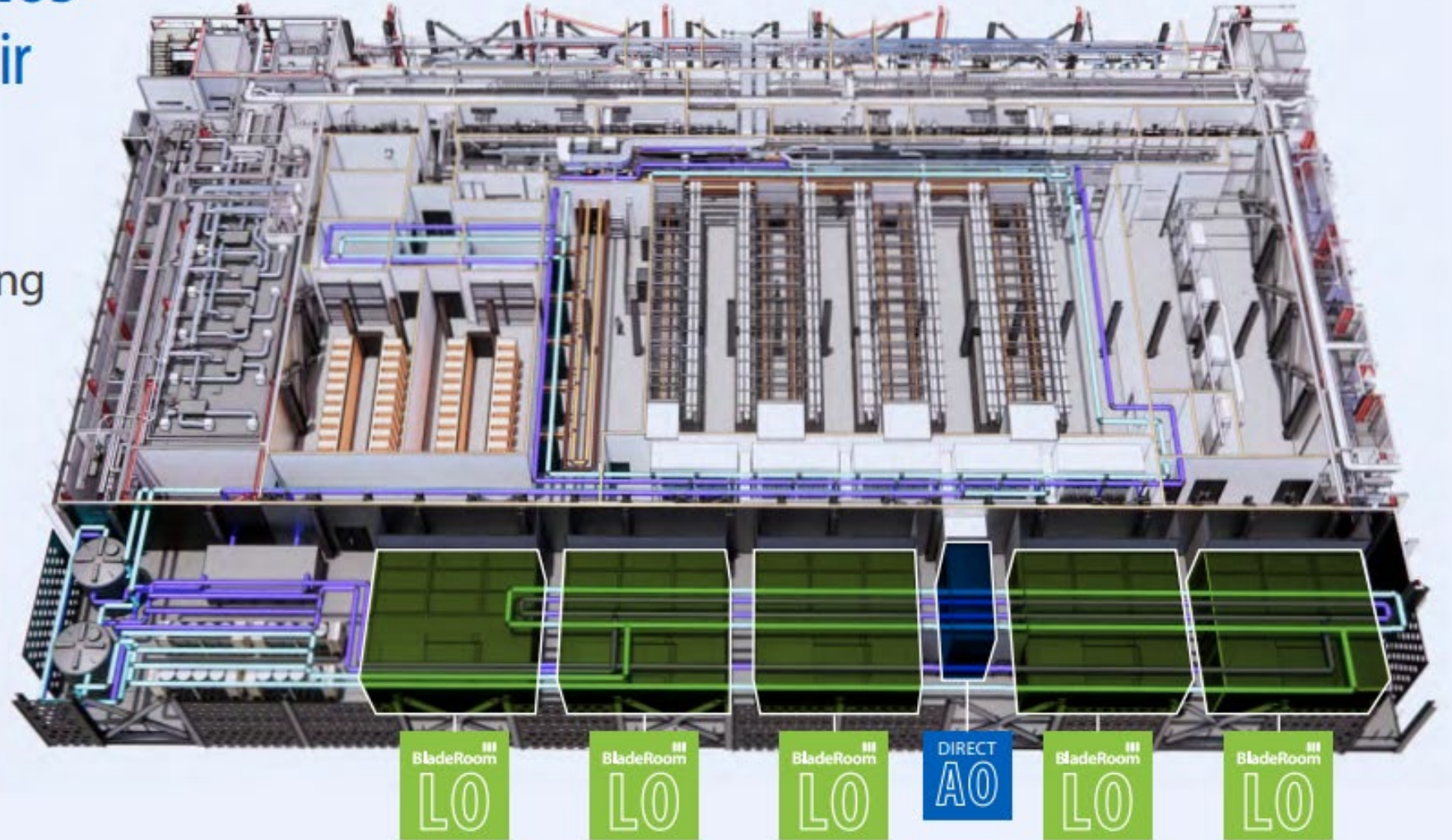




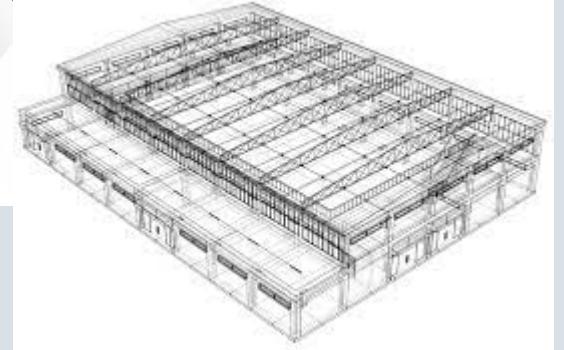
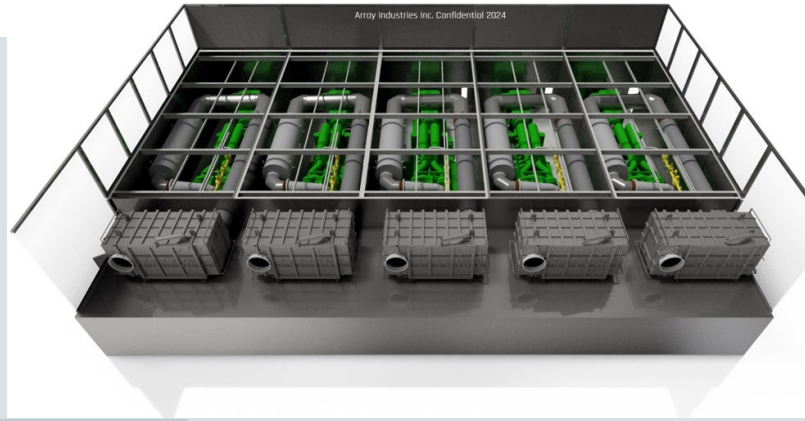
# Configurable Power and Cooling to Meet Your Customer Demand

## Air to Liquid Ratios All Data Halls need Air

- 4MW Data Hall
- 3.8MW Liquid Cooling
- 200kW Air Cooling



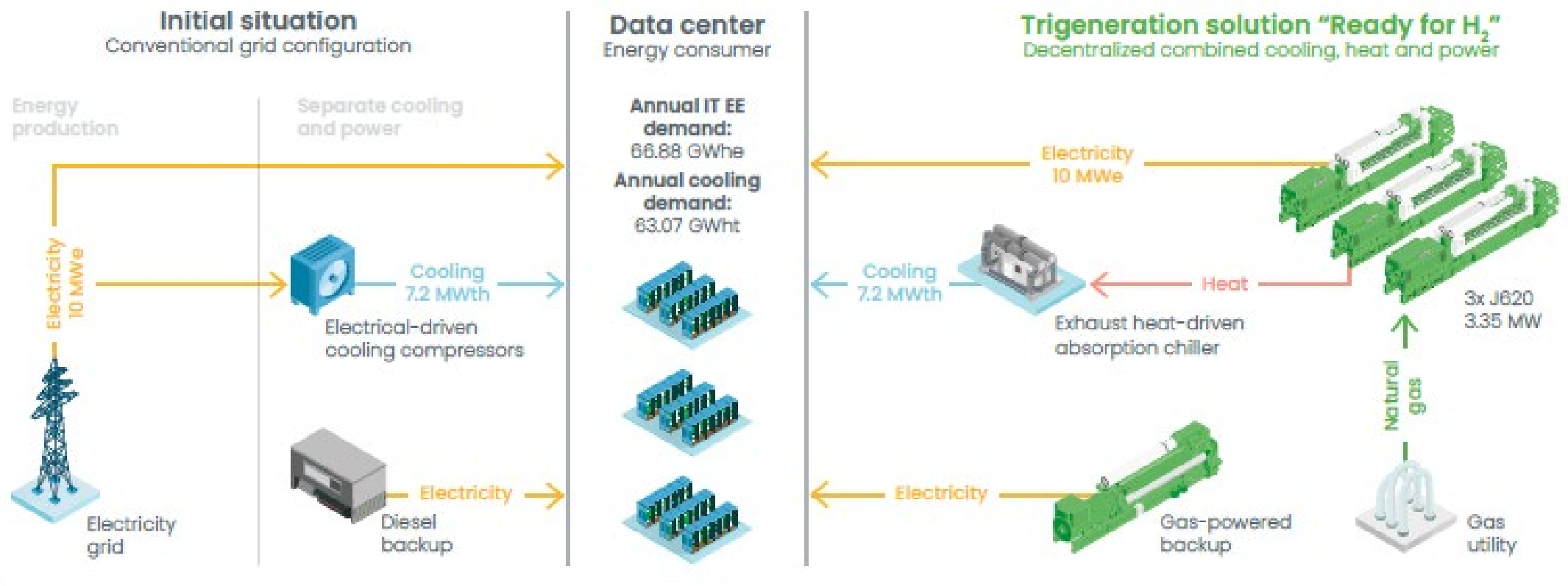
# Modular Power with Thermal Recovery



## **Jenbacher JGC620 J781 N+1 Power Block**

- Scalable Power blocks for 6MW and 12MW total load
  - Delivers 4MW and 7.5MW of IT power at N+1
  - Delivers 900 Tons of cooling at N+1
    - In Rack, In Row, Rear Door or Immersion
    - Optimized Air/Liquid design to your specification
- BESS Integration (10MW 1 hour) addresses rapid transient requirements and redundancy
  - Enables Technology Agnostic approach to generation
  - Smooth conditioned power delivery

# Power and Cooling



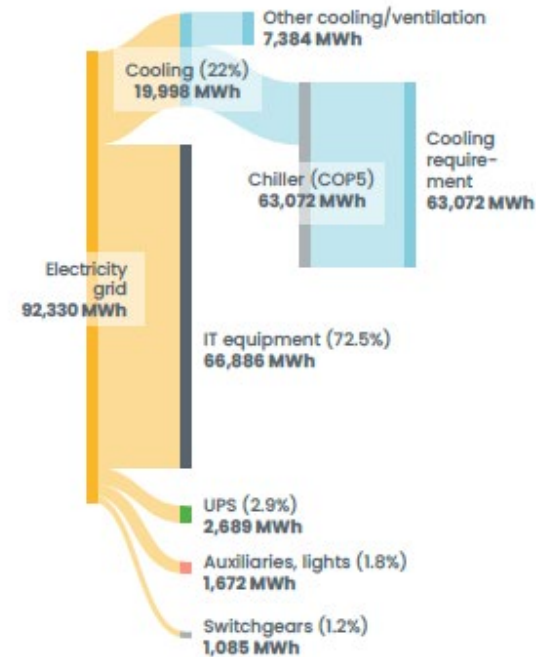


Integration of power thermal and free cooling technologies enables our integrated solution to drive down PUE

Resiliency design supports bridge power under an N+1, N+1+1 or N+2 configuration achieving 2N when grid becomes available utilizing initial generation plant as a fully redundant back up

**Conventional grid configuration**  
10 MW grid capacity data center with PUE = 1.38 based on energy consumption. Full year energy consumption, electricity purchase from the grid (energy in MWh).

10 MW



**Trigeneration configuration**  
Same data center with PUE = 1.19 based on energy consumption. No grid integration, trigeneration from 3 Jenbacher J620 engines. Full year energy consumption (energy in MWh).

3 x J620, 10 MW





# Data Center Specifications



## OUTLINE SPECIFICATION

### OVERVIEW

- ✓ Enterprise-class, fully-integrated data center
- ✓ Freestanding building, hardened facility
- ✓ Eight modules
- ✓ One hundred 42"D X 24"W X 44RU IT racks
- ✓ Eighteen 36"D X 24"W X 44RU network racks
- ✓ Two fiber management racks
- ✓ 1,000kW IT load @ N+1, expandable
- ✓ Contiguous, user-friendly space
- ✓ Server & DCIM technology-agnostic
- ✓ PUE less than 1.25
- ✓ manufactured & factory-commissioned in the US
- ✓ concurrent manufacturing & site development
- ✓ shipped as fully-assembled modules, minimal site work required

Utilizing on site generation with heat recovery PUE can be driven as low as 1.01

### SIZES & WEIGHTS

**Building Footprint** +/- 94' X 49' / 4,606 SF  
**Building Weight** +/- 350,000 lbs. (w/o IT gear)

Building Parameters vary based on your design

### ENVELOPES

<b>Structure</b>	Welded structural steel frames, double primed, 16 gauge frame infills
<b>Exterior Skin</b>	Steel-clad, structural insulated panels, smooth surface w/Kawneer 25-year metallic silver paint finish
<b>Wind Load</b>	175 MPH rated wall assemblies, 173 MPH rated door assemblies
<b>Moisture</b>	Redundant waterproofing & roofing systems, Tyvek wrap, HD tapered TPO single-ply roof membrane
<b>Weather Lock</b>	Entrance vestibule w/double doors to seal environment, walk off mat to prevent tracking
<b>Secure Entry</b>	Access-controlled Mantrap, interlocking doors, separate equipment entry
<b>Roof Screen</b>	Rooftop equipment protection w/perimeter steel roof screen, w/ secure workmen access door
<b>Signage</b>	Exterior graphics customized per Customer requirement
<b>Insulation</b>	Minimum R18 @ walls, R30@ roof, R16 @ floors & R12.5 @ doors

# Chilled Water

- 20 to 400 tons
- Single to triple effect
- Hot water, steam, and exhaust driven
- COP 0.7 to 2.5
- Indoor and outdoor rated

## Absorption Chiller

	65kw	200kw	400kw	600kw	800kw	1 MW
Tons of Chilled Water	25	65	130	195	260	325



## Power Cost Summary – CapEx Purchase

The Base Power solution will provide on-site power generation to serve 10.0MW of critical load. It will cost an estimated \$5.2M annually in OPEX and \$27M in CAPEX. Additional Redundancy features such as BESS, N+1gear and transformation and thermal recovery increase base price delivery.

### Annual OPEX Cost Summary

Natural Gas Utility Cost	\$2.41M
Operation and Maintenance	\$2.67M
Total OPEX	\$5.18M
Cost per kWh	\$(0.05 – 0.06)

### Capital Cost Summary

Equipment	\$22M
Engineering and Construction	\$5M
Total CAPEX	\$27M

### Project Returns

EST Annual IT Load Lease	\$2,040/kW
EST Rev Annual (8.0MW IT Load)	\$16.32M
Annual OPEX Cost	-\$5.15M
<b>Annual Cash Flow</b>	<b>\$11.17M</b>
<b>Simple Pay Back</b>	<b>2.4 Years</b>

- Assumes Utility Natural Gas Cost of \$3.50/Mmbtu
- Cost includes switchgear



# Case Studies



# PSECU – Harrisburg, PA

- C800 MicroTurbine
- 800 kW of Electricity
- Hot Water & Chilled Water Produced
- Primary power to data center (grid connect)

## Benefits

- Payback is exceeding the original model
- System helped client achieve LEED Gold status
- Has provided backup power to site multiple times since installation





# Edge DC with microgrid integration





# OATI Data Center

## Microgrid Solutions

- 600 kW of Microturbines
- 125 kW Solar PV
- 24 kW Wind
- 125 kW Ensync Battery
- 1500 kW Diesel Generator

## Results

- System has 2 modes of operation: “Normal” and “Emergency”
- OATI’s Grid mind schedules available distributed generation resources and orchestrates operation of prioritized loads
- Microgrid can power 100% of building for several days without grid

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# Campus Solutions

## UK DC Campus

- 35.7MW Grid Tied DC

**Integrating Power and Modular Data Center technologies into a standard yet customizable 10MW (IT Load) configuration enables rapidly scalable and resilient data center operations**

**Delivery of 10MW in as little as 6 Months with additional 10MW modules available every two months until scale is reached**

**Each installation is operationally ready**



# Thank you

QUESTIONS?