

De-Carbonizing the Campus: Planning, Tools & Technologies

CampusEnergy2023

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Gaylord Texan Resort & Convention Center | Grapevine, Texas



INTERNATIONAL
DISTRICT ENERGY
ASSOCIATION

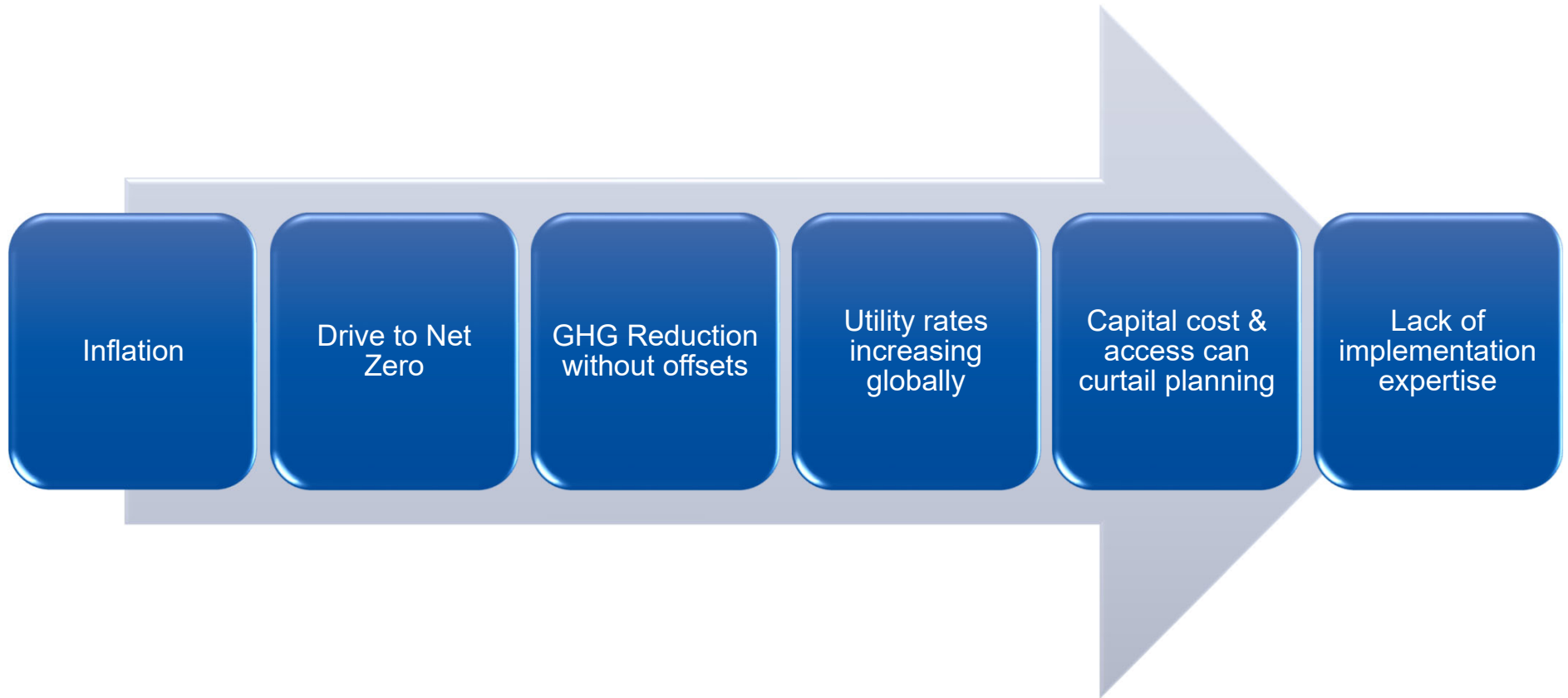


Alternative Strategies to Improve Valuation, Advance Decarbonization, and Increase Energy Savings

CampusEnergy 2023

IONICBlue

Why are we here?



Key Global Trends - The Race to Increased Energy Efficiency & Decarbonization

	Significantly accelerated trend	80% of respondents consider sustainability their top business priority ahead of increasing profitability and improving customer experience. This has increased by over 72% in the past 2 years
	Delivering growth is the key driver	1. Ability to attract customers based on corporate values (71%) 2. Part of their value proposition (63%) 3. Ability to attract customers who make purchase decisions based on sustainable products (55%)
	Technology investment is the common focus	1. Integrating onsite renewable energy (75%) 2. Upgrading old systems to improve efficiency (70%) 3. Engineering more sustainable operations (70%)
	Targets are high and dates are soon	85% of organizations have long term carbon emission or energy reduction goals but very few have net zero targets for themselves (13%). The average target date for achieving goals is 2024.
	Certifications are a central plan	98% of companies plan to pursue a sustainability certification. From the wide range of certifications available globally 70% of respondents are pursuing at least one type of LEED certification.
	Challenges relate to measurement abilities	1. Internal alignment on what and how to track (48%) 2. Data too siloed (43%) 3. Lack of in-house expertise (39%)

**This study was commissioned by Johnson Controls and conducted by Forrester Consulting. Johnson Controls collaborated on the survey questions and design, but Forrester retained final editorial control - Surveying over 2,300 senior sustainability strategy leaders globally in Sept 2021.*

Commitments are Loud and Clear – The Race has Begun



European Commission unveiled plans to make importers and non-EU manufacturers pay for the carbon emissions associated with the goods and materials they sell in the EU. By January 2026, importers expect to pay €75 per metric ton of CO₂.



SEC Proposes Rules to Enhance and Standardize Climate-Related Disclosures for Investors including disclosure of greenhouse gas emissions and a reduction plan.



IFRS Requires disclosure of sustainability-related information across a company's value chain

Includes activities, resources & relationships along supply, marketing and distribution channels

76

Fortune 100 companies have one or more climate commitments

194

Countries have signed **The Paris Agreement** to combat climate change

300

Fortune 500 companies have set goals to act on the climate crisis

312

Organizations have signed The Climate Pledge to be **net zero by 2040**

1,500+

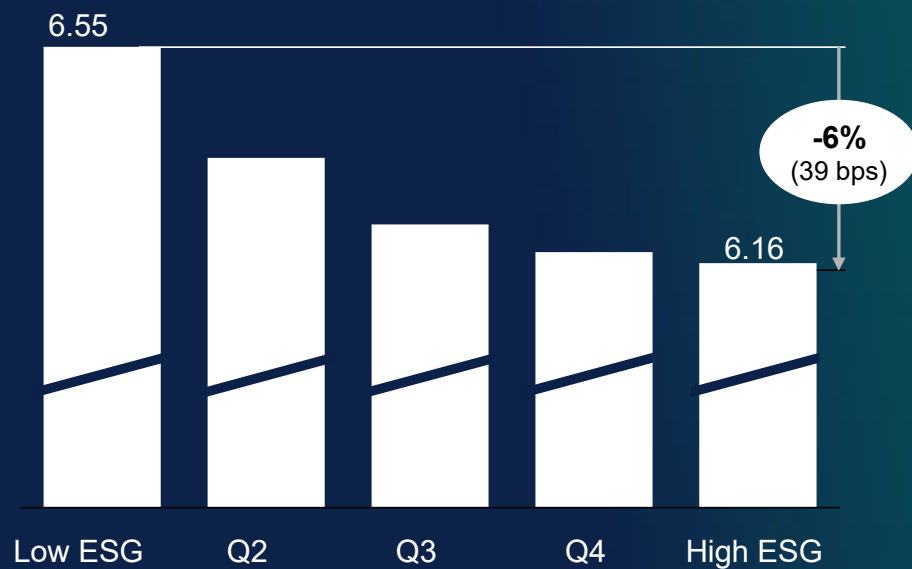
Companies globally have set a net-zero emissions target *a 3x increase since the start of 2020*

Private Sector Drivers

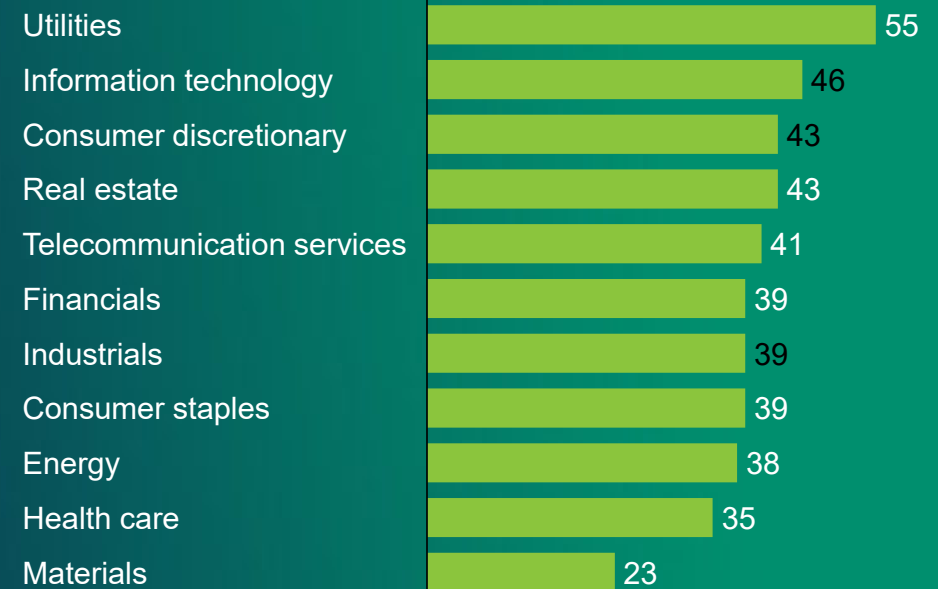
Companies with high ESG scores benefit from up to 6% lower cost of capital

Lower cost of capital for companies with higher ESG score

Average cost of capital per ESG quintile



Difference in cost of capital observed across sectors



Source: MSCI "ESG and the cost of capital", compared to lowest-ESG-scored quintile; Monthly averages were reported over the period from Dec. 31, 2015, to Nov. 29, 2019. The average number of companies in the MSCI World Index and MSCI Emerging Markets Index over the analysis period was 1,552 and 960, respectively

Targets of Opportunity



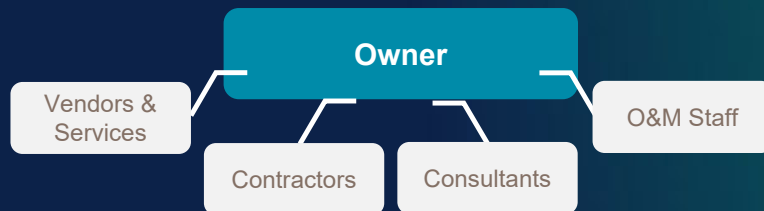
Rooftop HVAC



Rooftop Solar

Flexible Models to Increase Savings & Upgrade Infrastructure

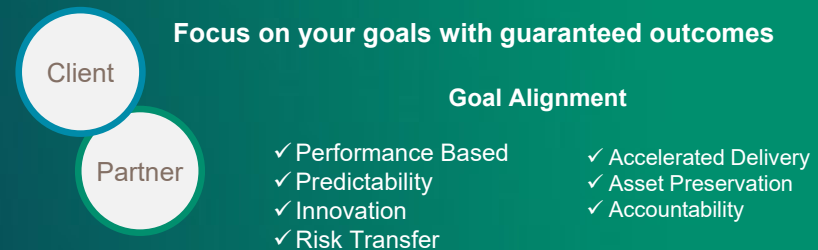
Traditional Model (Debt Financing)



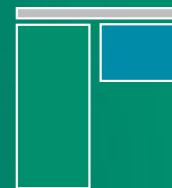
Service Provider Responsibilities	Owner Risks
Install & Commission	Goal Setting and Advisory Services
	Safe, Secure, Healthy Environments
	Digitally Enabled Environments
	Efficient Infrastructure
	Sustainable Operations
	Distributed Energy Resources
	Renewable Energy Supply Services
	Certify and Recognize Impact



Energy-as-a-Service Model with Risk Transfer



Service Provider Responsibilities	Owner Risks
Goal Setting and Advisory Services	Monthly Service Payment
Safe, Secure, Healthy Environments	Energy Commodity Cost
Digitally Enabled Environments	
Efficient Infrastructure	
Sustainable Operations	
Distributed Energy Resources	
Renewable Energy Supply Services	
Certify and Recognize Impact	

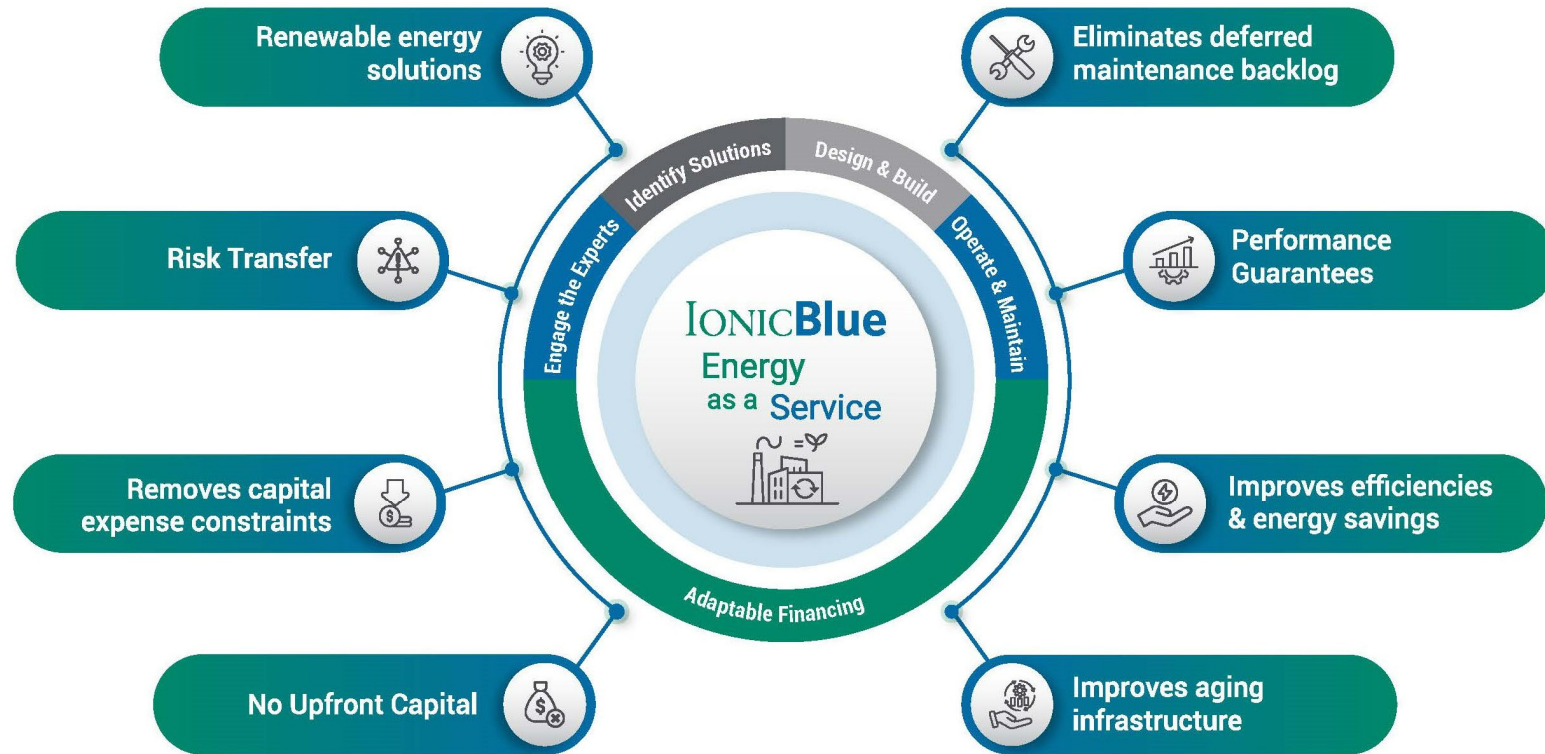


Energy-as-a-Service vs. Debt Financing

	IONICBlue	DEBT FINANCING
Term Lengths of 20-25 years	✓	✗ Max of 10-15 years
Commercial & Industrial focused contracts	✓	✗
No capital outlay by customer	✓ Payments begin after construction	✗ Payments begin before project completion
Performance Guarantees Over Life of Agreement	✓	✗
Project, construction, O&M and lifecycle risk transferred to lender	✓	✗ Customer assumes all risk
O&M, M&V and Lifecycle services performed by Johnson Controls	✓	✗ Customer obligation
Moves CAPEX to OPEX	✓	✗
"One throat to choke" fully wrapped project	✓	✗ Multiple counterparties
Flexible technical & finance solutions designed to meet needs of customer & facility	✓	✗
Optimized for decarbonization and ESG goal attainment	✓	✗

Benefits of the Model

Energy-as-a-Service (EaaS) Model



Case study

Decarbonizing a 50-year-old, 900,000 sq. ft. Commercial HVAC Facility



Challenge

- Decrease carbon footprint
- Reduce energy costs
- Improve air quality
- Modernize aged systems
- Incorporate renewable energy
- Increase productivity
- Lower operational costs
- Efficient use of space

Solutions

- Phase 1: Energy Efficiency
 - Lighting upgrade
 - Compressed air system
 - OpenBlue
 - DHWH replacement
 - Fuel cell forklifts
 - Control plug loads
- Phase 2: Deferred Maintenance
 - Chiller, boiler, NG, Metasys, AHUs, transformers, refrigerant
- Phase 3: Renewables
 - PV canopy
 - Vehicle recharging

Results

- Addresses \$19M deferred maintenance
- Avoids risk of \$1.5M in revenue loss per day
- \$34.6 per sq-ft. investment where \$140M was invested 2 years earlier, compared to \$200 per sq-ft. for new plant
- Highly visible solar array
 - Protecting product from damage
 - Demonstrates JCI's leadership in renewable energy
- Energy efficiency project improves working conditions in the plant
- Employee retention
 - Working in better light provides safer working environment
- Commitment to energy efficiency to avoid loss of favorable interest rates



Sustainability



Decarbonization & Energy Efficiency



Reduced Energy Consumption & a Greener Environment

The Solution that Turns Commitments into Results

Energy-as-a-Service brings customer-centric clarity to a perplexing market, providing you with:

- **Performance guarantees & risk transfer**
- Adaptable financing with a **high loan to value ratio**
- **A clear, holistic solutions** offering devoid of 3rd party confusion resulting from a lack of an inherent energy efficiency technology & services offering
- A solution set that **improves cash flow, valuation and sustainability**

Thank You

