

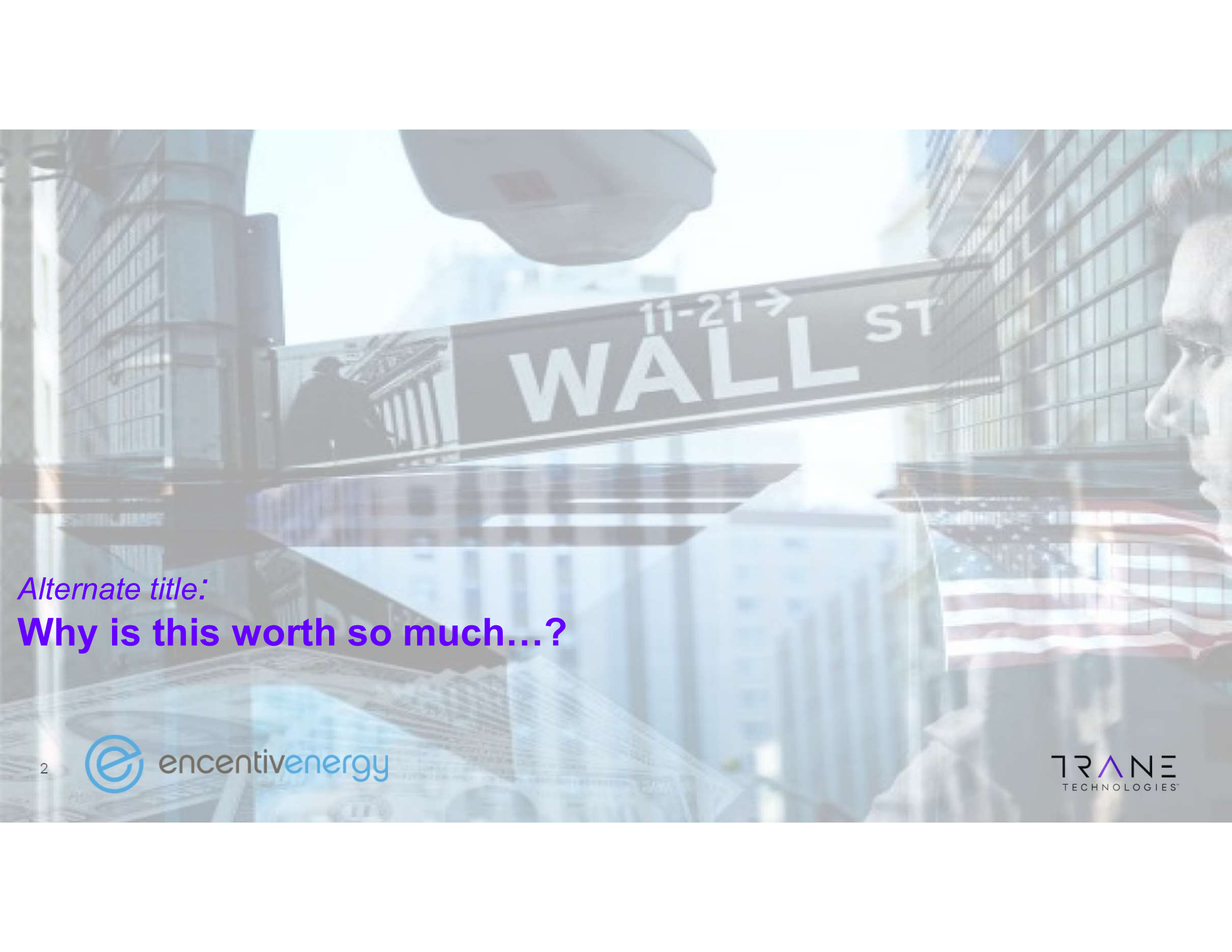


Decarbonization

Business Case for Investing in Sustainability

Ohio Conference on
Clean / Renewable Energy
AND ENERGY EFFICIENCY





Alternate title:

Why is this worth so much...?

**Reason #1:
Because they said so.**

Walmart



Sustainability Layers

Word choice matters

Sustainability (ESG)

Environmental

Social

Governance

Environmental Sustainability Attributes

Climate Change

Pollution & Resources

Water Security

Biodiversity

GHG Emissions

Scope 1

Scope 2

Scope 3

Scope Components

Fossil Fuels
Refrigerants

+

Purchased Electricity

+

Indirect Sources

=

CARBON FOOTPRINT

Solutions

Refrigerant Management
Electrification

+

Energy Efficiency
Renewable Energy

+

Embodied Carbon

=

Decarbonization



CO₂

SF₆

CH₄

N₂O

HFCs

PFCs

SCOPE 1
DIRECT

SCOPE 2
INDIRECT

SCOPE 3
INDIRECT

PURCHASED ELECTRICITY
FOR OWN USE

COMPANY
OWNED VEHICLES

PRODUCTION OF
PURCHASED
MATERIALS

EMPLOYEE BUSINESS TRAVEL

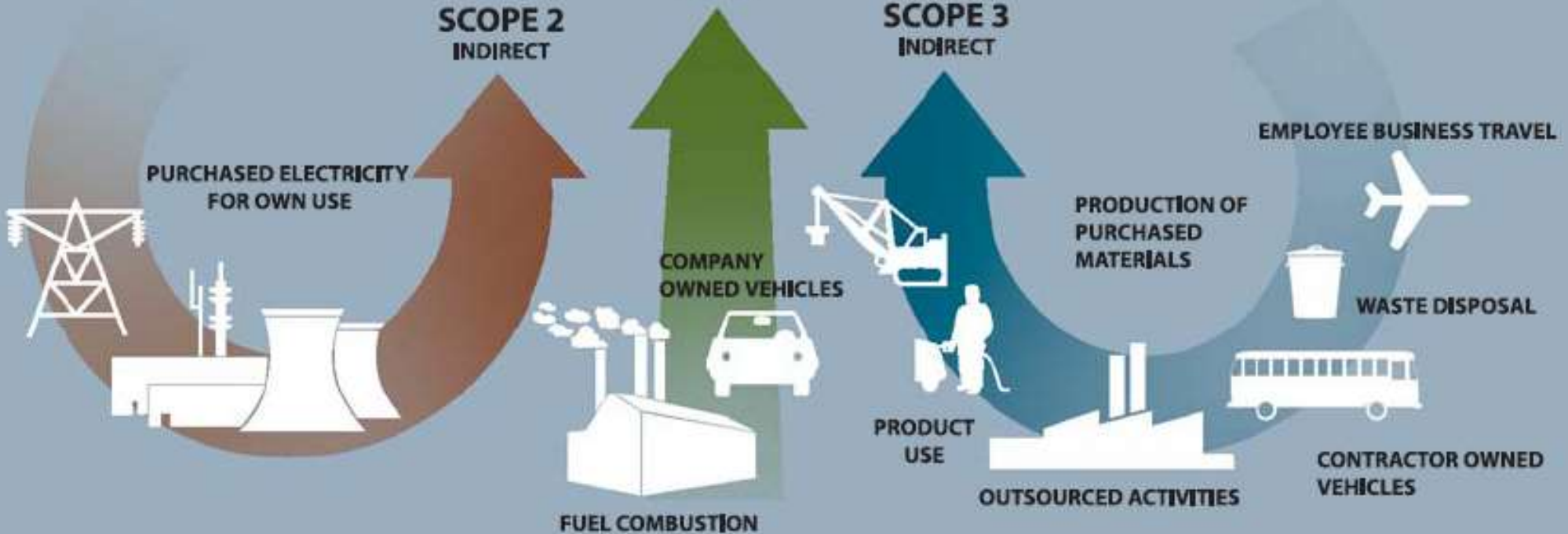
WASTE DISPOSAL

PRODUCT
USE

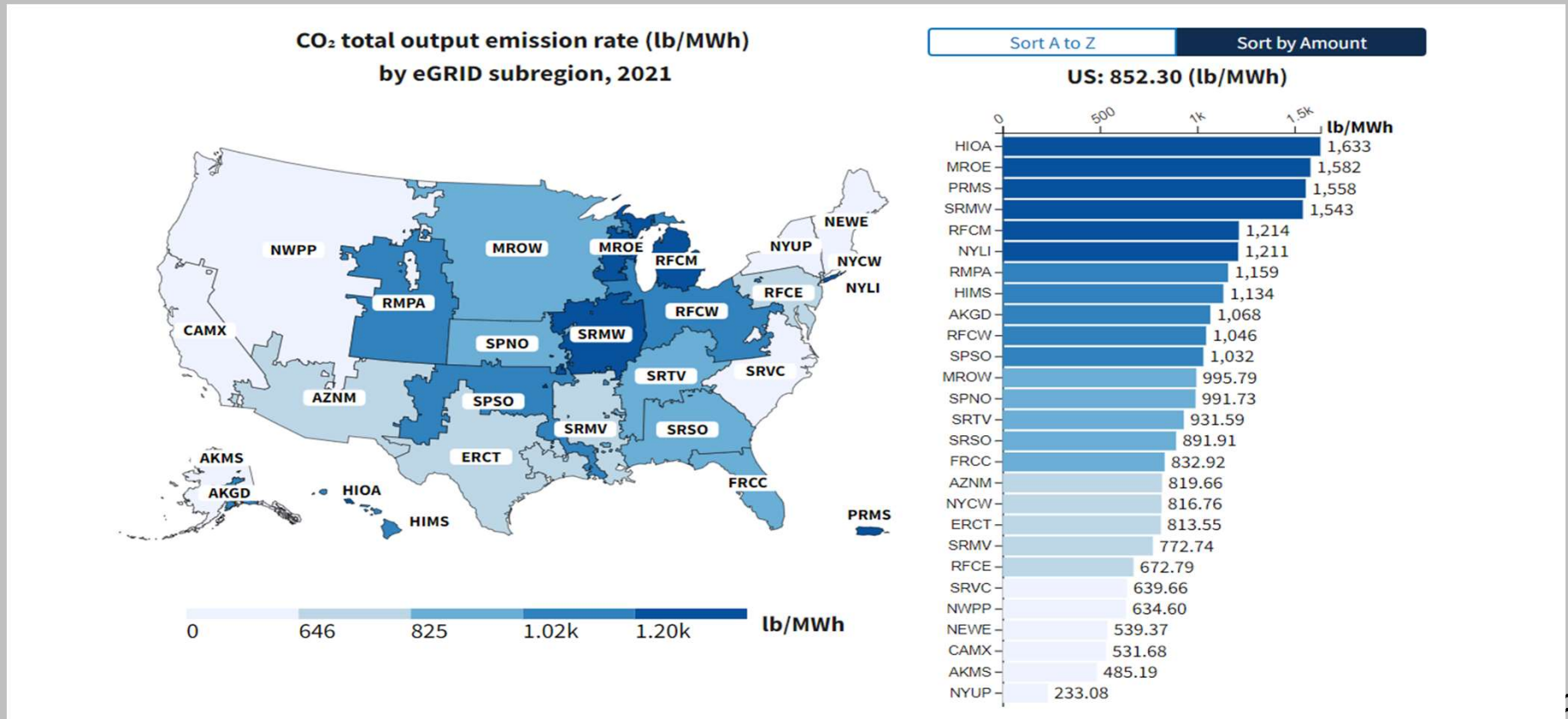
OUTSOURCED ACTIVITIES

CONTRACTOR OWNED
VEHICLES

FUEL COMBUSTION



Emissions Impact by Region



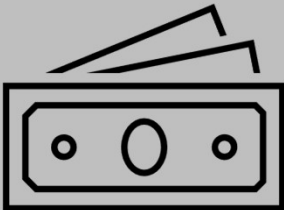
Why Energy Decarbonization



Remove business risk



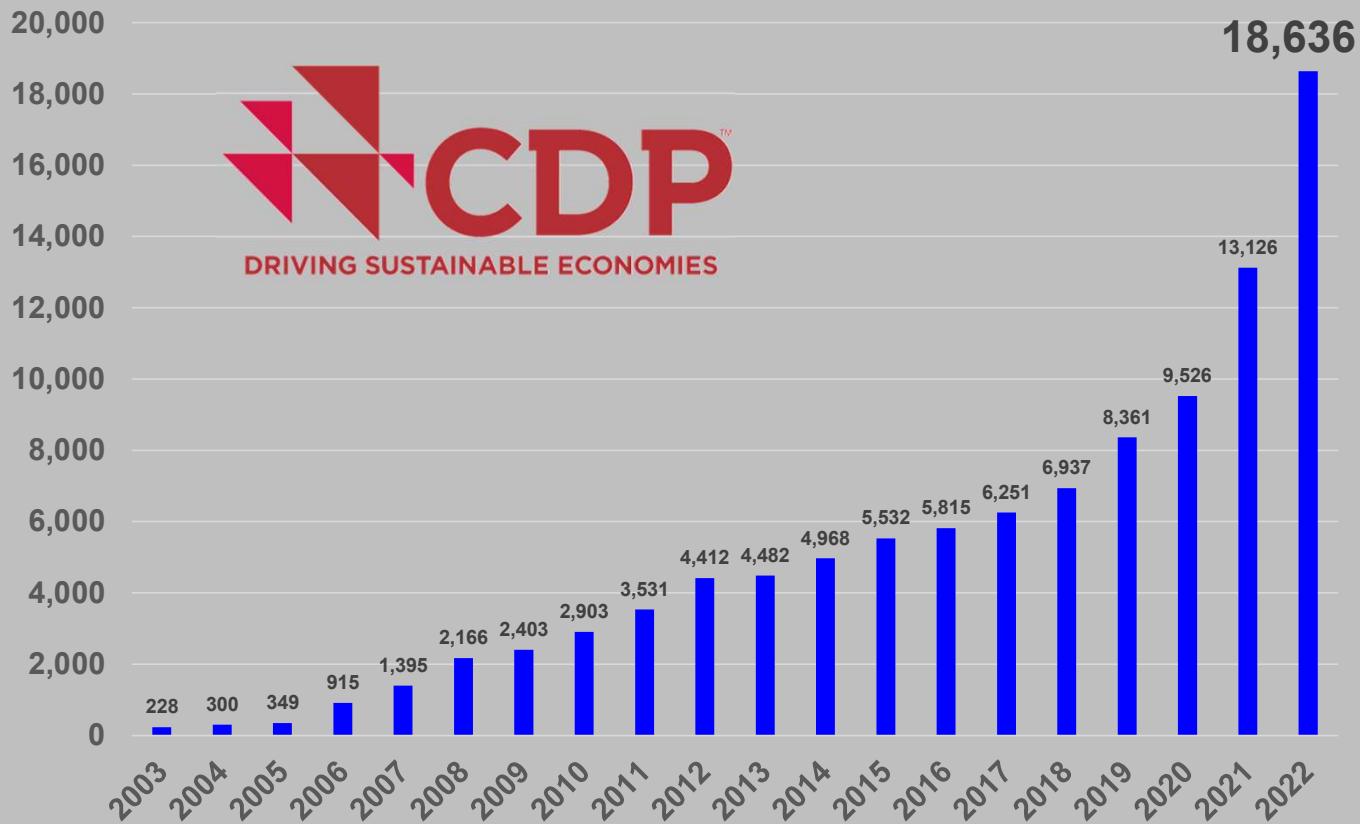
Create shareholder and brand equity



Reduce operational costs

Elevate outcomes by going beyond traditional energy projects

Corporations are leading the way



CDP Grading Scale

283 of the 18,636 disclosing companies in 2022 received an A rating on Climate Change (1.5%)

Leadership: A, A-
Management: B, B-
Awareness: C, C-
Disclosure: D, D-
Non-Disclosure: F

A-List Outperforms the Rest of the Market



Financial Performance

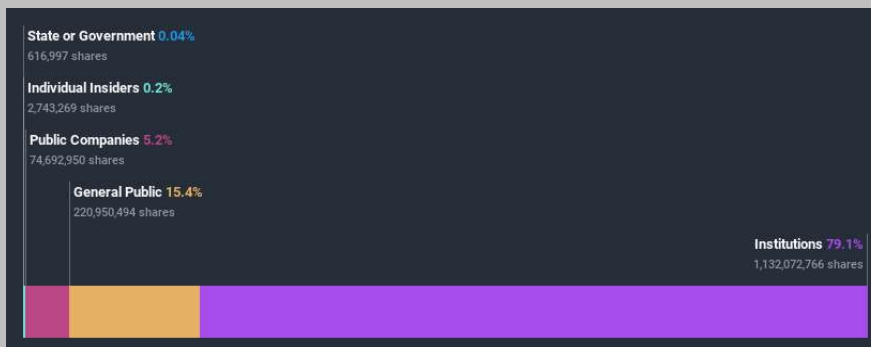
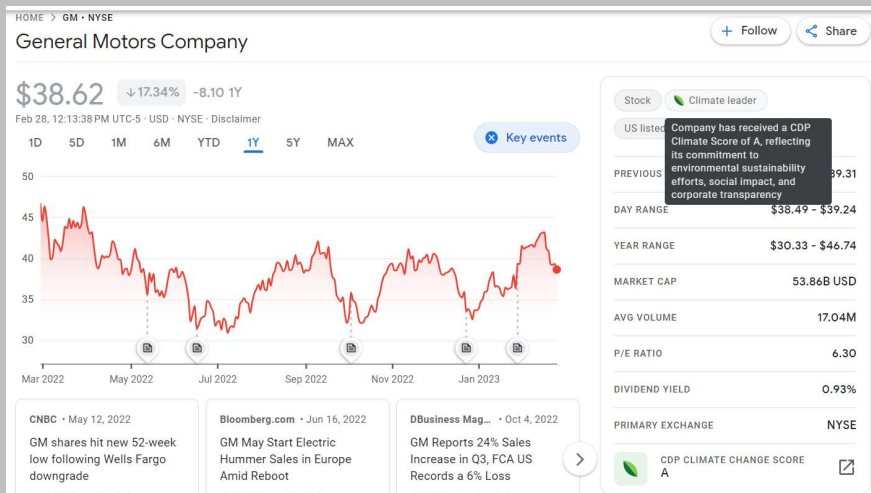
200 of the **13,126** companies that filed CDP disclosures on Climate Change received an 'A' Rating

These companies outperformed the reference index by

5.8%

per annum
from 2011 to 2021

Reason #2: Institutional Investors are Driving Change



Blackrock owns 10.9% of Outstanding GM Stock

“There is no company whose business model won’t be profoundly affected by the transition to a net zero economy – one that emits no more carbon dioxide than it removes from the atmosphere by 2050...As the transition accelerates, companies with a well-articulated long-term strategy, and a clear plan to address the transition to net zero, will distinguish themselves with their stakeholders – with customers, policymakers, employees and shareholders – by inspiring confidence that they can navigate this global transformation.”

Larry Fink – CEO, Blackrock
in his 2021 Letter to CEOs



Stages of Corporate Decarbonization

- 1 “We are getting pressure from investors and we need to set a goal.”
- 2 “We have set a decarbonization goal, but we have no idea how we are going to achieve it.”
- 3 “We are working towards our goal, but we could use help with X”

Current Tailwinds to Decarb Programs



Rising Energy Costs

Inflation Reduction Act

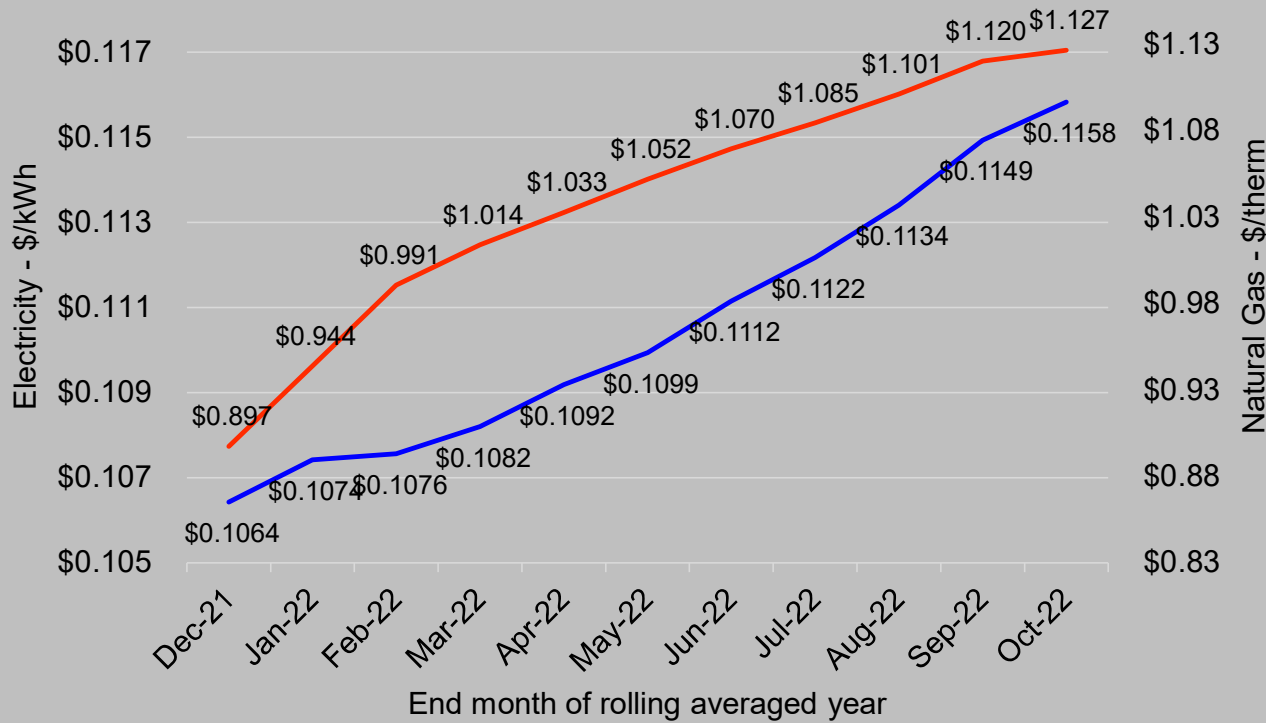
ESG Pressures and Ambitions

Regulations and Compliance



Energy Price Inflation Illustration

Energy Cost Intensities - Rolling Annual Average



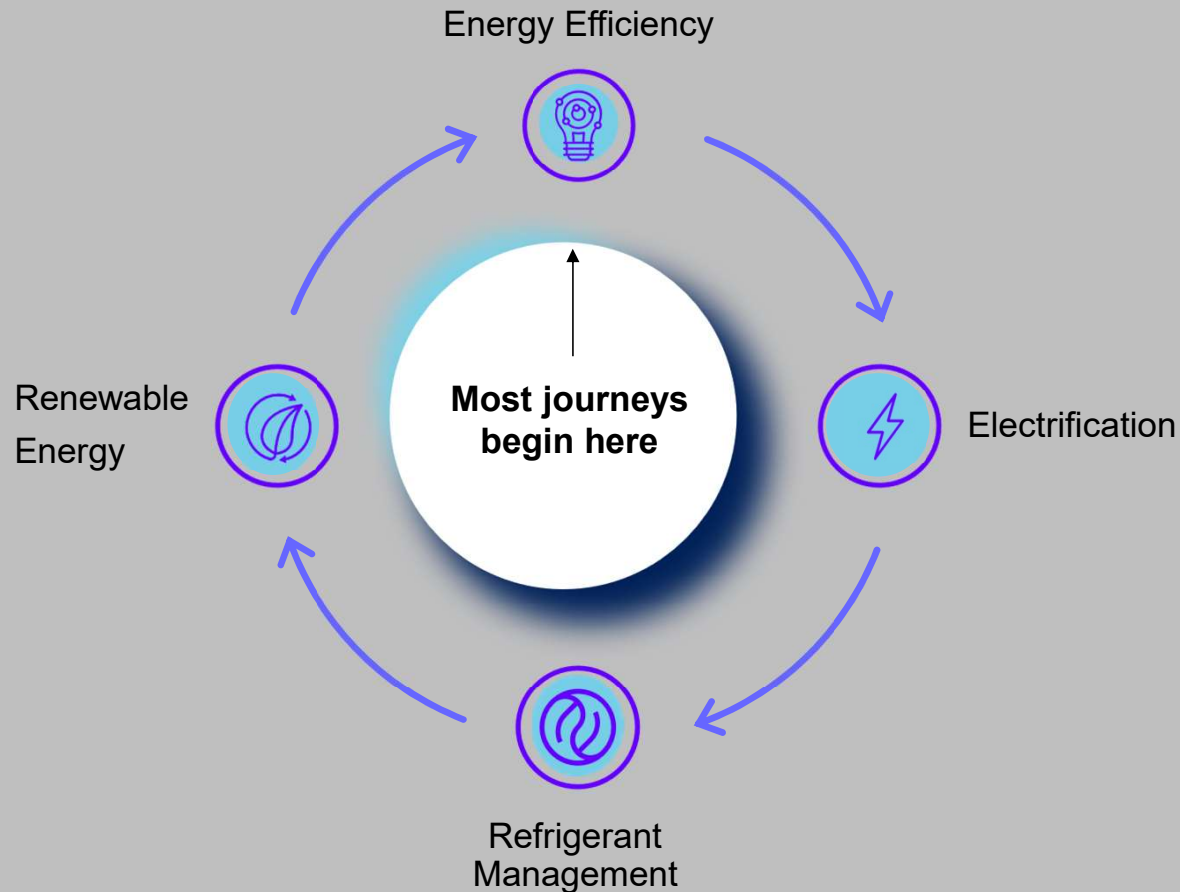
This illustrative client example, with 100+ locations across the United States has experienced a:

8.5%
increase in
Rolling 12 month
Electricity prices

22.73%
increase in
Rolling 12 month
Natural gas prices

From December 2021 – Oct.
2022

Corporate Decarbonization Pillars



Drivers Impacting Business & Financial Investment Decisions on Decarbonization

- *Volatile Energy Markets*
- *Emissions Reduction*
- *Resiliency*
- *Regulatory Compliance*
- *Legislative Uncertainty*
- *Technological Advances*

A close-up photograph of a green frog sitting in a pond. The frog is the central focus, with its head and shoulders above the water. Its eyes are large and prominent. The water is dark and reflects the frog. A thin green stem of a lily pad or similar plant arches over the frog from the top left. The background is a soft, out-of-focus green and brown.

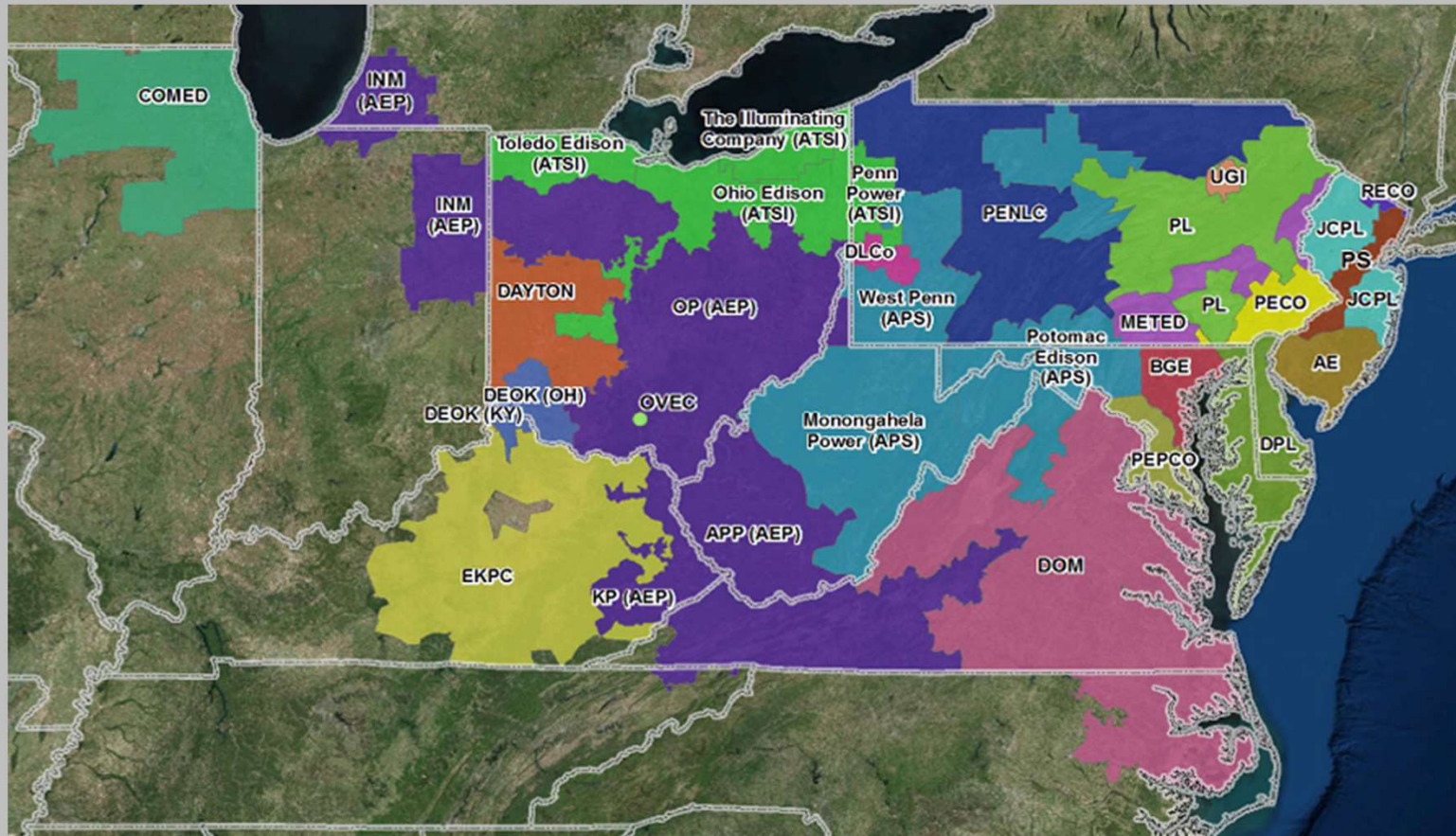
Reason # 3: Today's Workforce & Consumers are Picky

78% of MBA Students surveyed in 2022 reviewed their employer's environmental policy before accepting a position

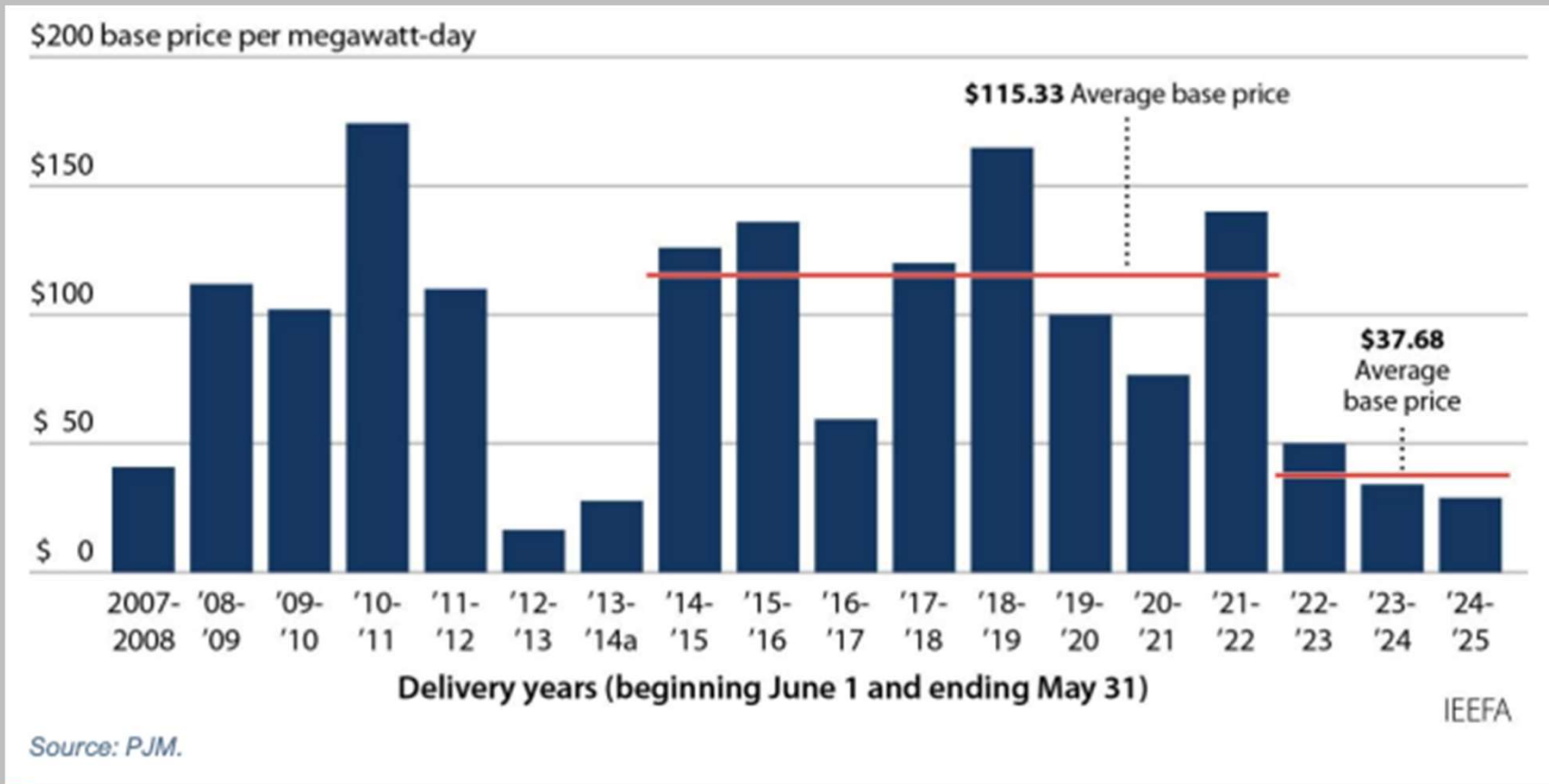
80% of the Fortune 500 have a published CSR Report

39% of consumers actively seek companies providing eco-friendly products & services

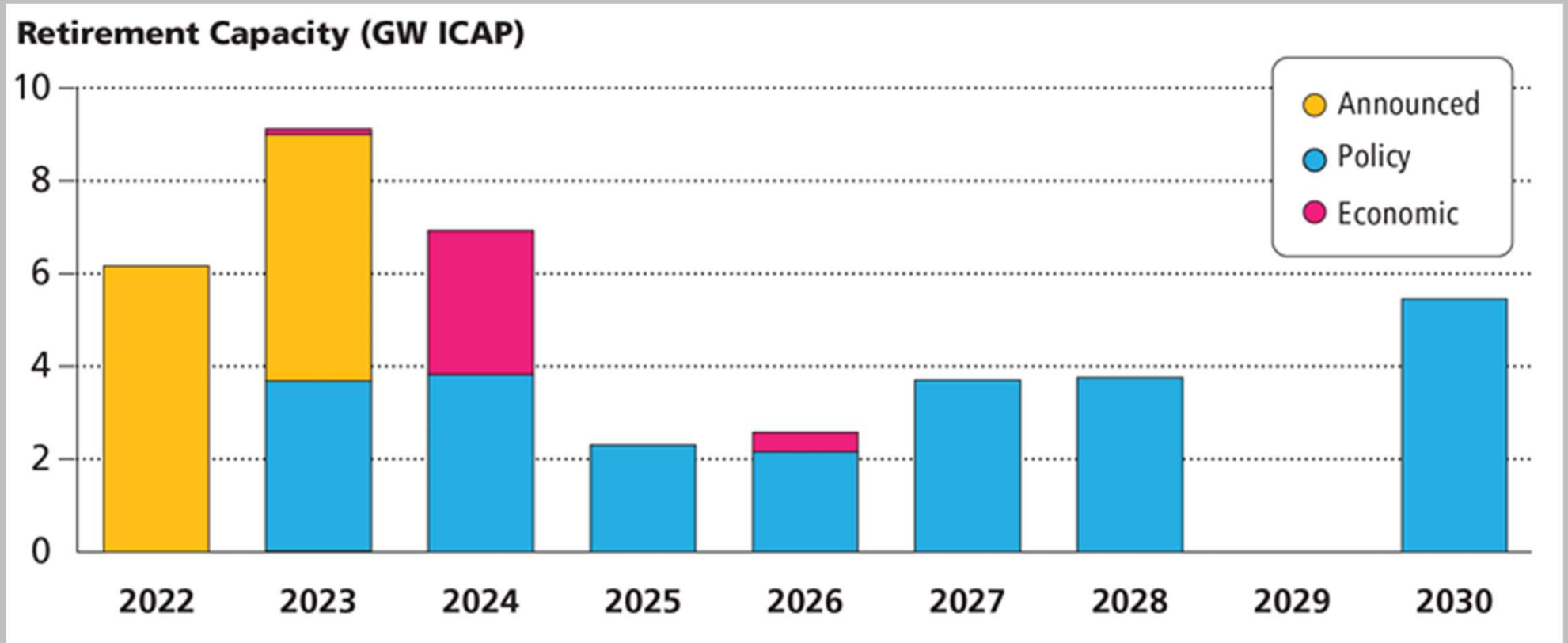
Decarbonization and the Electric Grid








Decarbonization and the Electric Grid



Decarbonization and the Electric Grid



Decarbonization and the Electric Grid

Balance Sheet Summary (2022–2030)				
<p>Retirements</p> <p>40 GW</p> <p>60% Coal 30% Natural Gas 10% Other</p> 	<p>New Entry Wind/Solar⁶</p> <p>Low = 48 GW-nameplate / 8 GW-capacity</p> <p>High = 94 GW-nameplate / 17 GW-capacity</p> 	<p>New Entry Standalone Storage</p> <p>Low = 3 GW</p> <p>High = 4 GW</p> 	<p>New Entry Thermal</p> <p>Low = 4 GW</p> <p>High = 9 GW</p> 	<p>Load Growth</p> <p>2023 Forecast = 11 GW</p> <p>Electrification Forecast = 13 GW</p> 
<p>Unless otherwise noted, thermal capacity values are expressed in ICAP, without adjustment for EFORD.</p>				

Decarbonization and the Electric Grid – Energy Efficiency and Demand Response

Delivery Year	2021/2022	2021/2022	2022/2023	2022/2023	2023/2024	2023/2024	2024/2025	2024/2025
Data	Offered	Cleared	Offered	Cleared	Offered	Cleared	Offered	Cleared
	UCAP	UCAP	UCAP	UCAP	UCAP	UCAP	UCAP	UCAP
Coal	53,444	47,531	45,754	39,230	37,164	31,811	35,114	31,532
Distillate Oil (No.2)	3,254	3,155	3,178	2,897	2,894	2,855	2,776	2,674
Gas	78,863	76,164	85,562	79,329	85,217	81,643	85,469	83,258
Nuclear	32,541	21,898	31,944	26,140	31,960	31,960	31,835	31,629
Oil	5,218	3,955	2,674	2,527	2,350	2,269	2,493	2,220
Solar	644	589	2,633	2,096	2,945	2,935	4,234	4,232
Water	7,239	6,760	6,917	6,749	6,375	6,375	6,137	6,137
Wind	1,551	1,526	2,595	1,839	1,608	1,416	1,396	1,396
Battery	-	-	-	-	16	16	36	36
Hybrid	-	-	-	-	-	-	10	10
Other	1,419	1,318	1,205	1,168	1,185	1,185	1,153	1,153
Demand Response	12,114	11,353	10,604	8,903	10,652	8,631	10,334	8,180
Aggregate Resource	-	-	484	386	511	511	503	503
Grand Total (w/o EE)	196,288	174,249	193,551	171,263	182,875	171,605	181,491	172,961
Energy Efficiency	2,955	2,832	5,057	4,811	5,471	5,471	8,417	7,669
Grand Total (w/EE)	199,243	177,081	198,608	176,073	188,346	177,076	189,908	180,630

Energy Efficiency Incentives

UtilityGenius™

Admin Search Rebates Why UtilityGenius? API Pro Pricing Resources My Account

Find a Program

Search ...

USA Canada

Select State ...

UtilityGenius: Expert

Our most powerful subscription yet

Featuring multisite capabilities, access to all DLC manufacturers for project scoping.

UtilityGenius™

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State Utilities

viewing utilities in Ohio

Ohio

Access the following features with Pro:

- Filter by Technology to see rebates for a product category across all utilities
- Custom program information
- Free EV rebate reports


See a demo!

Prescriptive Instant Custom

Viewing: Primary Utilities

- Ohio Edison Co
- Cleveland Electric Illum Co
- The Toledo Edison Co
- AES/Dayton Power & Light Co

Energy Efficiency Incentives



Ohio School District

Address
7440 Liberty Road

City Solon *Zip* 44139 *State* Ohio

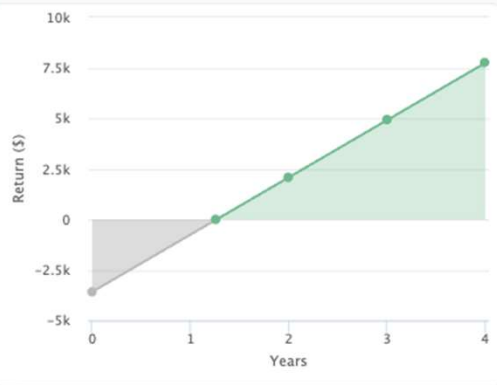
Building Type
Education

Utility
Ohio Edison Co

[Edit Building](#)

Archive

Project Cost	\$5,000.00
<i>Equipment</i>	\$5,000.00
<i>Labor</i>	\$0.00
<i>Other</i>	\$0.00
Cost of Waiting / Year	\$2,832.00
<i>Energy Savings</i>	\$2,832.00
<i>Annual Maintenance Cost</i>	\$0.00
Utility Rebate	\$1,416.00
Time to Payback	1.8 Years
Time to Payback (With Utility Rebate)	1.3 Years
CO2 Reduction Equivalency	20.1 Tons



Building Rebates

For more information about this utility [click here](#)

LED [36 Categories Incentivized](#) \$0.00-\$15.00 <

CTRL [5 Categories Incentivized](#) \$0.00-\$25.00 <

Connected Projects

Energy Efficiency Incentives

[Services](#) ▾ [Products & Solutions](#) ▾ [Training & Support](#) ▾ [Industries](#) ▾ [About](#) ▾

Find Your Trane Rep

[Trane Commercial HVAC](#) > [Decarbonization](#) > [Trane Commercial Equipment Rebate Finder](#)

Trane Equipment Rebate Finder

Find available commercial and industrial prescriptive rebates on select Trane equipment in your area. This rebate finder only covers Trane's commercial unitary, ductless, and applied equipment. It does not include rebates for lighting, controls, demand response programs, custom rebates or any other systems/services rebates.

Please contact the utility/rebate program manager for details on rebates that are not listed here.

How to Use the Rebate Finder
+

Category *

Air Cooled Unitary Air Conditioner (Packaged)

Utility *

West Penn Power Company

BTUH Range *

Select BTUH Range

Check out the menu on the left for more advanced search options!

Zip Code

Zip Code

Program Type

Prescriptive

State

Pennsylvania

Product Search

1 to 10 of 2,253

Product	Series	Rebate	BTUH	EER	IEER	Utility
R(A,X)06000(F,4,5)2**A*2*	INTELLIPAK	\$5875	705000	11.3	16.2	Utility
RE060(C,D,E,F)A(F,4,5)2**A*2*	INTELLIPAK	\$5875	705000	11.1	16	Utility

Timing is Everything

Technological & Legislative Alignment Create Opportunity

Inflation Reduction Act

Leveraging Federal Incentives

Department of Energy

DOE Projects Monumental Emissions Reduction From Inflation Reduction Act

AUGUST 18, 2022

Energy.gov > DOE Projects Monumental Emissions Reduction From Inflation Reduction Act

Historic Legislation Supports Massive Clean Energy Buildouts, Rebates and Tax Credits to Slash Domestic Emissions up to 40%, Save Americans Hundreds of Dollars in Energy Costs a Year

WASHINGTON, D.C.—The U.S. Department of Energy (DOE) today released a fact sheet highlighting the Inflation Reduction Act's monumental support for clean energy technologies that will lower energy costs for families and businesses while helping drive 2030 economy-wide greenhouse gas (GHG) emissions to 40% below 2005 levels. The legislation will also bolster domestic manufacturing and provide direct investments for overburdened and underserved communities across America. This is the first report by the United States government analyzing how the Inflation Reduction Act can reduce GHG pollution.

Even more, the Act will lower energy costs for working families with rebates and tax incentives for home energy improvements, solar energy, and electric vehicles. The Inflation Reduction Act enhances President Biden's strong executive actions on climate change, state and local government actions, as well as the game-changing innovation currently being developed by American workers and businesses. Together with the President's Bipartisan Infrastructure Law, these transformative accomplishments will help position the U.S. to reach President Biden's goal of reducing greenhouse gas emissions 50-52% in 2030.

Source: [US Dept of Energy](https://www.energy.gov)

The White House @WhiteHouse

The Inflation Reduction Act will reduce greenhouse gas emissions by about a gigaton. That puts America on track to cut climate pollution by 40% and positions us to meet @POTUS' goal to cut that pollution in half by 2030.

WE'RE
REDUCING
GREENHOUSE
EMISSIONS
BY ABOUT A
GIGATON
BY 2030

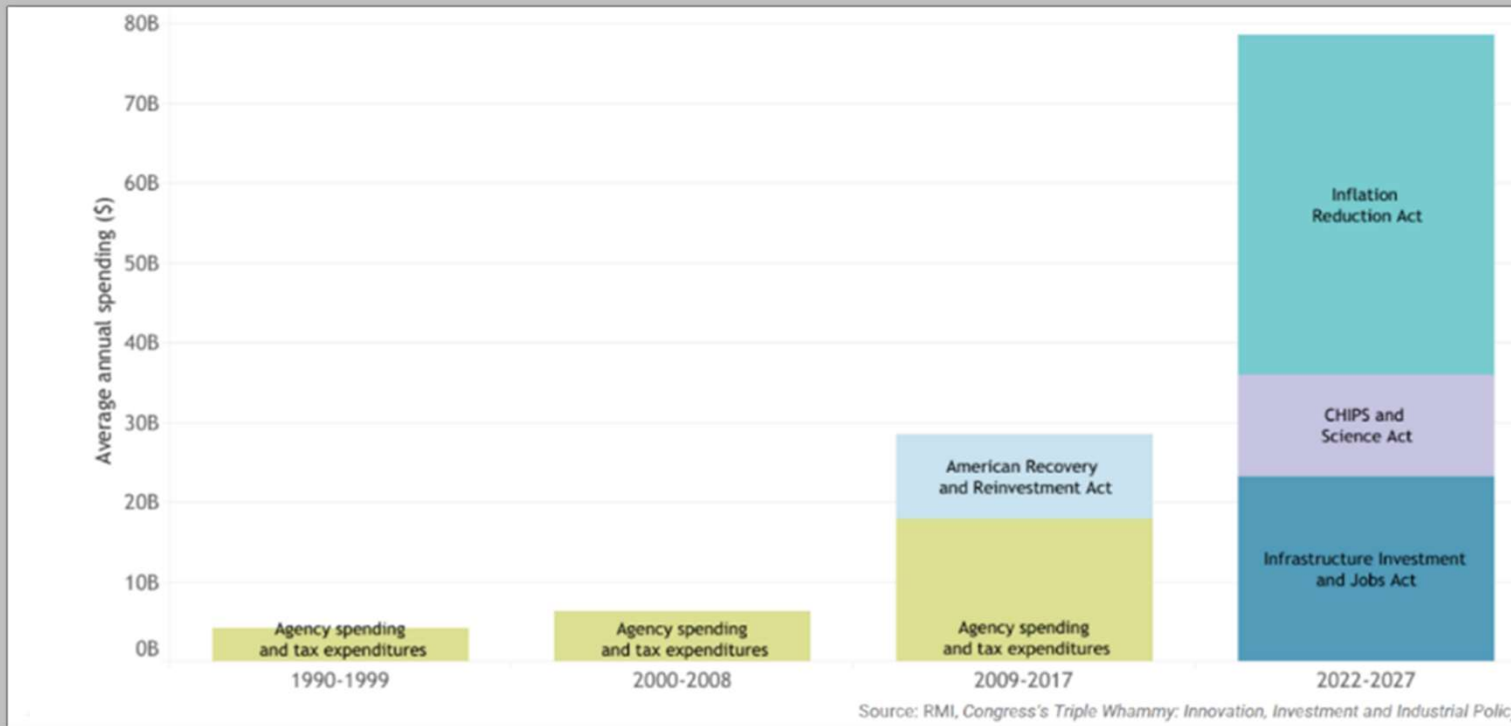
1 gigaton = 1 billion metric tons

4:30 PM · Aug 21, 2022 · The White House

Source: [The White House](https://www.whitehouse.gov)

Federal Climate Spending

Over the next decade, spending on climate will more than triple historic levels based on federal appropriations and authorizations dedicated to clean energy technologies.



Investment Tax Credit

Section 48: Energy Investments

Long-standing **tax credit** for private and non-taxable entities

Historically for qualified “energy property,”

incl: solar, fuel cells, microturbines, geothermal heat pumps and combined heat and power

Expanded to incl. **thermal energy storage property** – defined as:

Property comprising a **system** which:

- (I) is directly connected to a **heating, ventilation, or air conditioning system**,
- (II) removes heat from, or adds heat to, a **storage medium for subsequent use**, and
- (III) provides energy for the heating/cooling of the interior of a **residential or commercial building**

Increased incentive credit values intended to promote investment in qualifying assets (energy property)

Updated Investment Tax Credit

Base Rate	6%
Meets Domestic Content Requirements**	2%
Meets Energy Communities Requirements***	2%
Prevailing Wage & Apprentices Hours requirement multiplier	5x
Total Potential Credit Value	6% - 50%

Local Funding Sources

Ohio Air Quality Department Authority

Clean Air Improvement Program

Bond financing with tax exemption provisions for investments in cleaner, more efficient technologies such as pollution control, energy efficiency, and renewable energy.



Ohio Energy Loan Fund

Low-interest rate loan for qualifying projects that meet certain energy saving criteria



Other Sources

Grants, Green Banks, Private Foundations



Federal Grant & Loan Programs

Renew America's Schools

Competitive Grant for qualified renewable energy & energy efficiency improvements
Administering Agency: Office of State and Community Energy Programs (Dept of Energy)
<https://www.energy.gov/scep/renew-americas-schools>

Renew America's Nonprofits

Competitive Grant for qualified renewable energy & energy efficiency improvements
Administering Agency: Office of State and Community Energy Programs (Dept of Energy)
<https://www.energy.gov/scep/renew-americas-nonprofits>

Rural Energy for America Program

Guaranteed Loan financing & Grants for renewable energy and energy efficiency improvements
Administering Agency: USDA Rural Development (Dept of Agriculture)
<https://www.rd.usda.gov/programs-services/energy-programs>

PROFESSIONAL PROFILE



JERRY SCHMITS, CEM
Comprehensive Solutions
Great Lake Region
Southern Ohio



Trane Technologies is a global climate innovator based in Swords, Ireland

Trane Commercial HVAC Americas is headquartered in Davidson, NC

NYSE: TT

O: 513.326.2481
M: 859.803.4711
jerry.schmits@trane.com

INDUSTRY EXPERIENCE

- National Accounts
- Commercial Office
- Healthcare
- Local Government
- Higher Education
- Large Box Retail
- Small Box Retail
- Grocery/Supermarket
- Warehouse/Distribution
- Hospitality
- K-12

PROFESSIONAL EXPERIENCE

Mr. Schmits' professional experience spans nearly 25 years in the energy-efficiency and sustainability industry. A career sales and consulting professional accomplished in growth-phase business ventures with significant achievements in executive leadership, business development, sales management, and product marketing. Prior to joining Trane Technologies, Jerry served President & CEO of the Greater Cincinnati Energy Alliance, where he developed Ohio's largest PACE Financing administrative services business. With extensive experience in start-up phase companies, Mr. Schmits has served in various roles launching businesses such as Cadence Network, LLC, CBRE's Global Energy & Sustainability Division, and KLH Energy Solutions.

Mr. Schmits began his career working in various capacities for Cinergy Corporation, one of North America's largest energy companies (currently Duke Energy). Jerry resides in the Greater Cincinnati area and holds a Bachelor's Degree (Business Administration) from Thomas More College.

Jerry is an avid fisherman and conservationist who also enjoys golf, cooking, and reading. He resides in the Greater Cincinnati area.

PROFESSIONAL AFFILIATIONS & CERTIFICATIONS

- Association of Energy Engineers
- Certified Energy Manager

EDUCATION

- Thomas More College, Bachelor of Business Administration

BRIEF BIOGRAPHY

Jerry Schmits currently leads Comprehensive Solutions for Trane Technologies' in the Great Lakes Region, where he supports Local Governments, Universities, Healthcare Systems and K-12 Districts in capital planning, energy efficiency and sustainability projects and financing. Jerry is the former President & CEO of the Greater Cincinnati Energy Alliance and has served in various roles during the start-up phase of companies such as Cadence Network, LLC, CBRE's Global Energy & Sustainability Division, and KLH Energy Solutions. Jerry has spent his entire career improving the net operating income and operational performance of commercial buildings through the implementation of energy efficiency and sustainability projects. He is a graduate of Thomas More College and resides in the Greater Cincinnati area with his wife, Nicole.

Biographical Information



Megan Phillips
Comprehensive Solutions Acct. Exec.
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216-346-3865
Megan.phillips@trane.com

Working across several markets sectors, Megan helps businesses and organizations through capital asset planning, infrastructure improvements, and optimizing the energy performance of commercial buildings. Drawing upon her experience integrating complex solutions with emerging technologies and project financing, she helps clients balance sustainability goals, compliance requirements, and operational performance for K-12 Districts, Local Governments, and Healthcare organizations.



Steve Moritz
President & CEO
Encentiv Energy
6425 Living Pl. Ste. 200
Pittsburgh, PA 15206-5122
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smoritz@encentivenergy.com

Steve brings over 25 years of experience in the energy industry working for multiple industry start-ups. Steve has spent his career building and managing successful businesses that thrive in the ever-changing world of state and federal energy regulation. His passion is to create opportunities for energy savings, carbon reduction and revenue generation by influencing and leveraging the energy regulatory process.