

NATIONAL UTILITY CONTRACTORS ASSOCIATION



# Economic Overview 2024-2025

NATIONAL UTILITY CONTRACTORS ASSOCIATION (NUCA)

Annual Convention

Mark Bridgers - Continuum Capital

March 23, 2024

Palm Springs, CA

# Objective & Agenda

▶ Objective:

- Provide insight into global and economic conditions that will shape the North American underground construction markets in 2024 and 2025.

▶ Agenda:

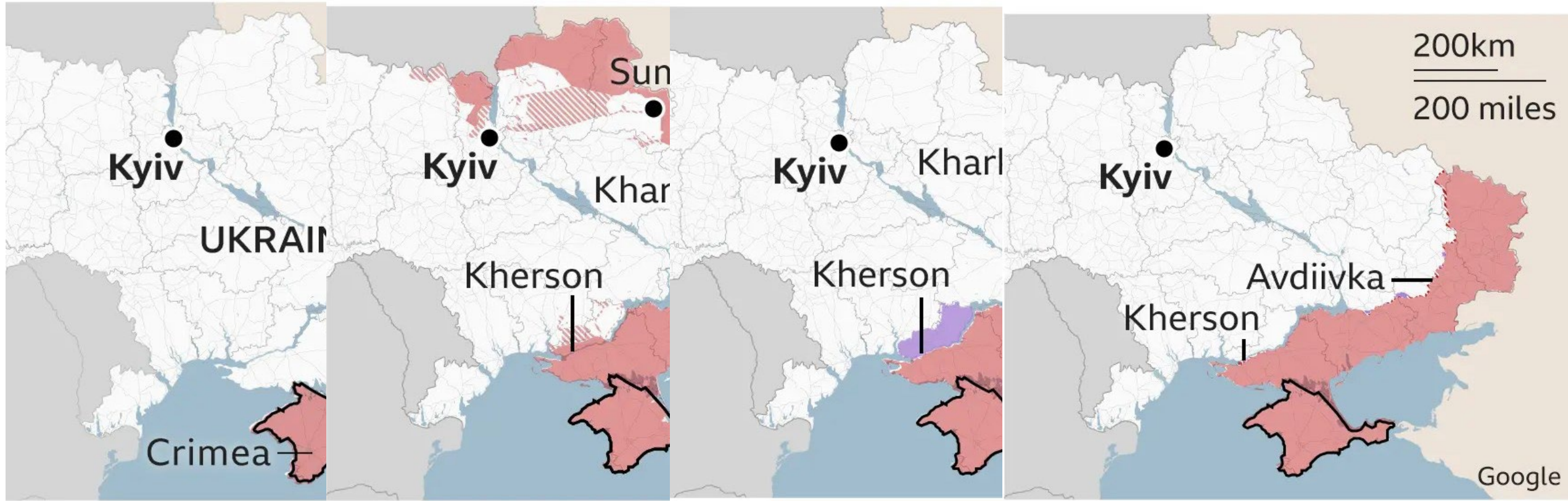
- Geopolitical Impacts
- AI Transformation Driver
- North American Economic Insights

# Geopolitics – Stalemate in Ukraine *(1 of 2)*

► Stalemate, no physical help for Ukraine in foreseeable future

- Russian military control
- ▨ Limited Russian military control
- Russian-backed separatist-held areas
- Held or regained by Ukraine
- Russia annexed Crimea in 2014

Feb 2022: Before t Mar 2022: Russia’s r Nov 2022: Ukraine | Feb 2024: Stalemate on front line



Source: BBC News, "Ukraine War in Maps: Tracking the Russian Invasion", February 21, 2024.

# Geopolitics – Stalemate in Ukraine (2 of 2)

## ▶ Stalemate, no physical help for Ukraine in foreseeable future



Source: ISW (21:00 GMT, 20 February)



- ▶ Russians advancing – retaking of Avdiivka
- ▶ Ukraine hamstrung as they are facing shortages of nearly all types of military equipment – Active drone use against large or high value targets
- ▶ Russia’s target to gain full control of the Donbas and control of the entirety of the Black Sea access remain out of reach
- ▶ Russian sanctions are a sieve
  - Stolen Ukraine grain sold to Iran for cash
  - Saudi Arabia “laundering” Russian oil
  - China “laundering” Russian oil and gas
  - Energy payments demanded and made in rubles
- ▶ Continued outcome forecast:
  - Stalemate = continued fighting, continued sanctions, continued VUCA

Source: BBC News, “Ukraine War in Maps: Tracking the Russian Invasion”, February 21, 2024.



# Geopolitics – Next Russian Threat?

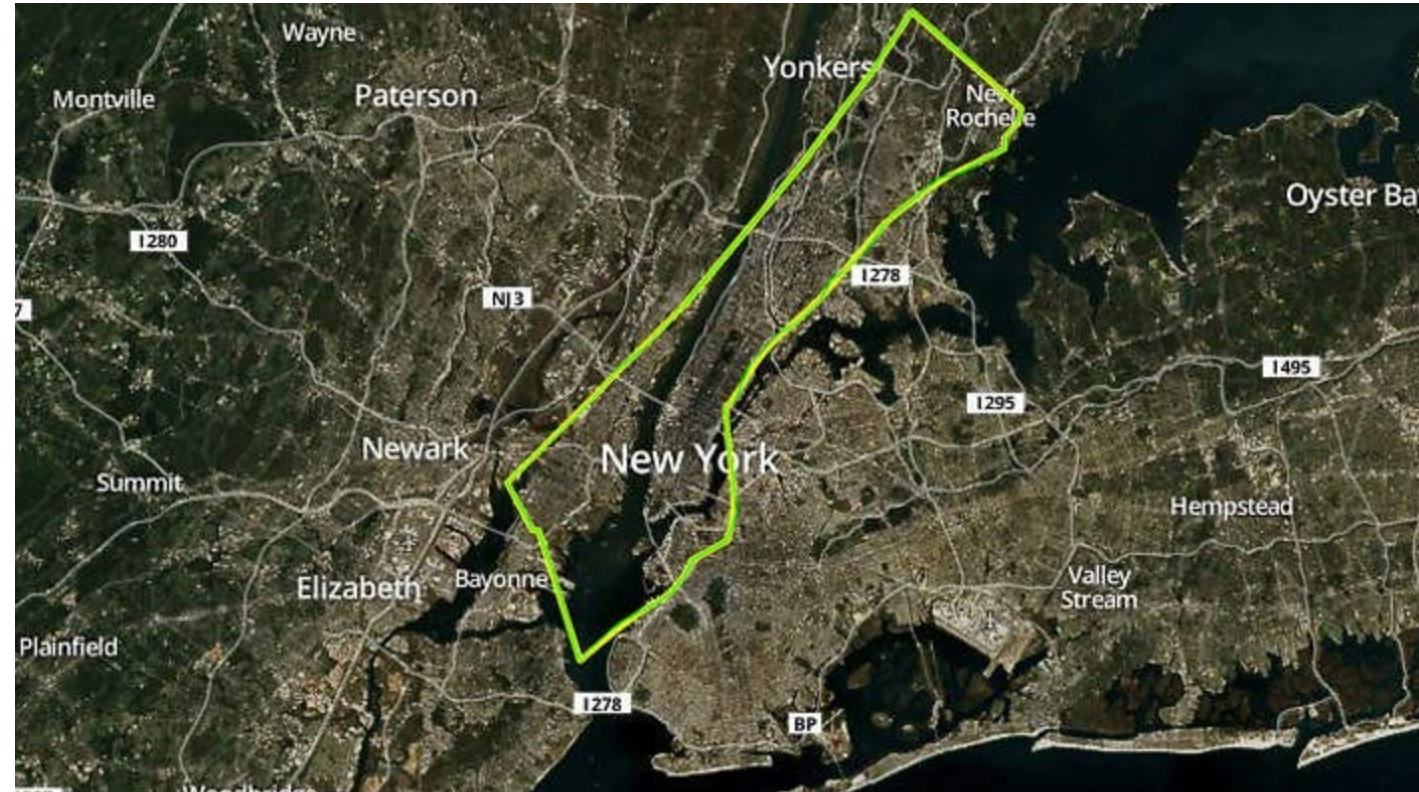
- ▶ Transnistria – Breakaway republic within Moldova
  - Referendum on Transnistria’s annexation to Russia – similar to “free & fair” elections held in Donbas region of Ukraine by Russians.
  - Sets the stage for the purported need to protect Russian citizens and “compatriots” in Transnistria from threats from Moldova or NATO or both.
  - Introduces instability on Ukraine’s west and deeper into Europe – more VUCA.



Source: Barros, George; Kagan, Fredrick W.; Harward, Christina; and Evans, Angelica, WARNING: Transnistria May Organize a Referendum on Annexation to Russia to Support Russian Hybrid Operation Against Moldova, February 22, 2024.

# Geopolitics – War in Gaza

- ▶ Destabilizing the Middle East further and inflaming passions.
- ▶ Introduces more VUCA.



Source: Jacobs, Harrison, [These Maps Show What The Gaza Invasion Would Look Like in Major US Cites](#), July 25, 2014.

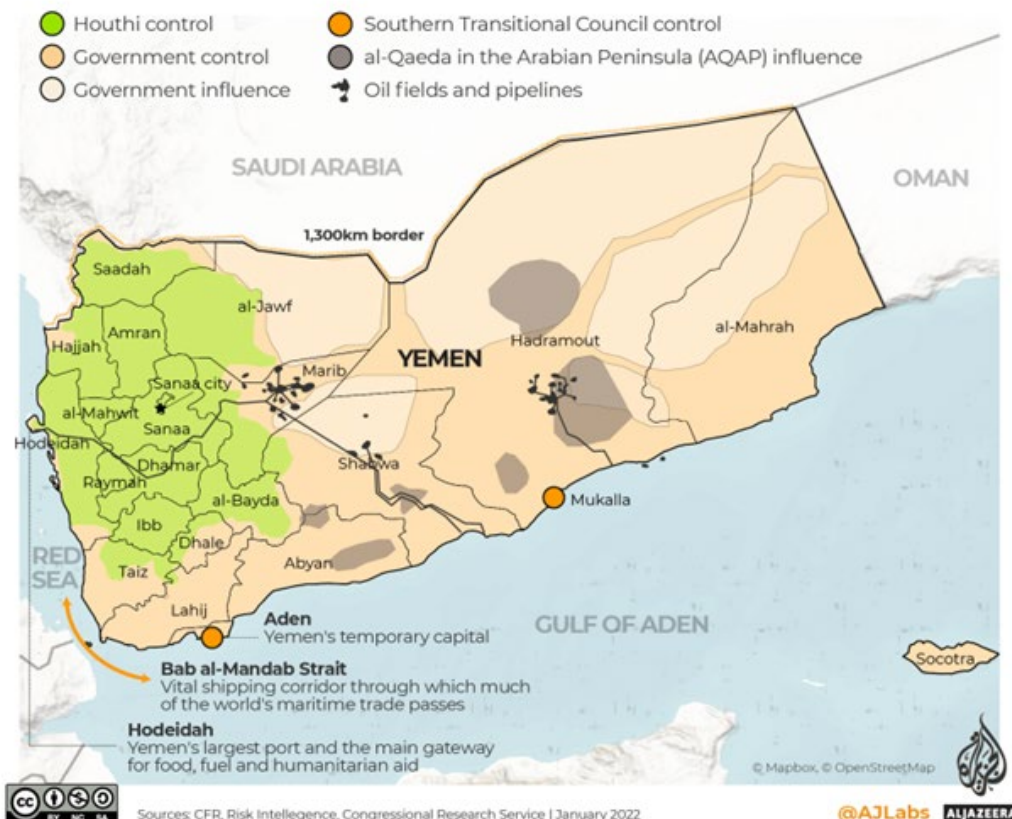
# Geopolitics – Houthi Antagonist

- ▶ Iran backed revivalist movement among Zaydī Muslims, who belong to a small sect of Shi‘i Islam.
- ▶ The Houthi movement, named after its founding figure, a politician and Zaydī activist named Hussein Badr al-Din al-Houthi, calls itself Anṣār Allāh (“Defenders of God”).
- ▶ Disrupting global trade and forcing ships to take a far longer route around Africa and causing insurance costs to rocket higher for the world’s five major shipping firms – Maersk, Hapag-Lloyd, CMA CGM Group and Evergreen.
  - Avoidance of the Red Sea and Suez Canal is adding weeks to shipping time by going around Africa.
- ▶ Introduces more VUCA.

## YEMEN

### Who controls what

Seven years since the launch of the Saudi-led campaign, the bulk of Yemen's northern highlands, as well as the capital city of Sanaa, remain under the control of Houthi rebels.

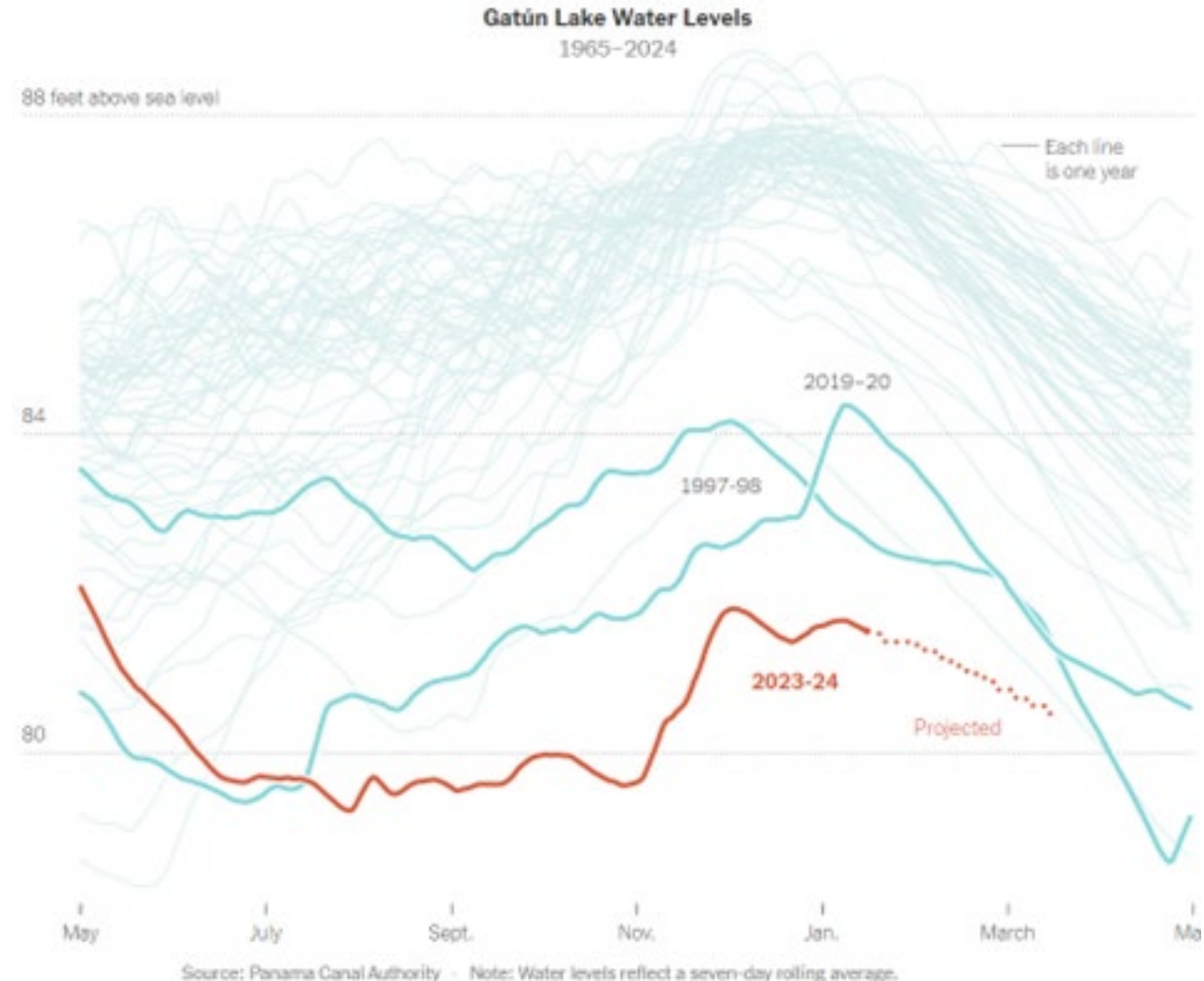


Source: Haddad, Mohammed, Infographic: Yemen's war explained in maps and charts, Al Jazeera, February 9, 2022.



# Geopolitics – Panama Canal

- ▶ Drought effecting lake levels and access to water to move vessels through the locks.
- ▶ Panama Canal Authority has reduced daily traffic through the narrow corridor by nearly 40 percent.
- ▶ Wait time at the canal entrance is adding weeks to shipping time.
- ▶ Introduces more VUCA.



Source: Rojanasakul, Mira, [Panama Canal Drought Slows Cargo Traffic](#), January 26, 2024. Original Source: Panama Canal Authority, [Gatun Lake Water Levels 1965-2024](#).  
Interpretative Note: Water levels reflect a seven-day rolling average.



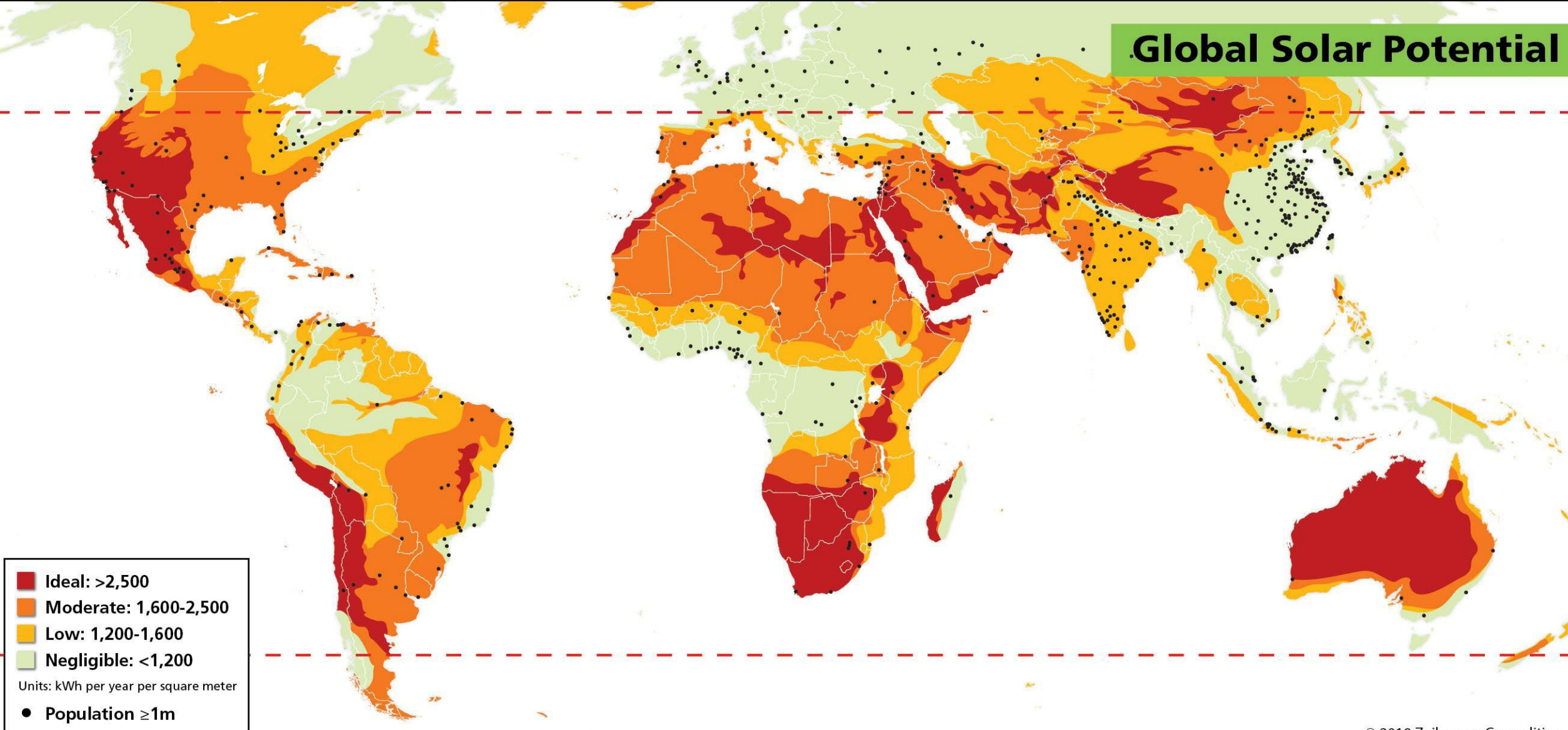
# A Coming China Conflict?



Source:.

# The GreenTech Question

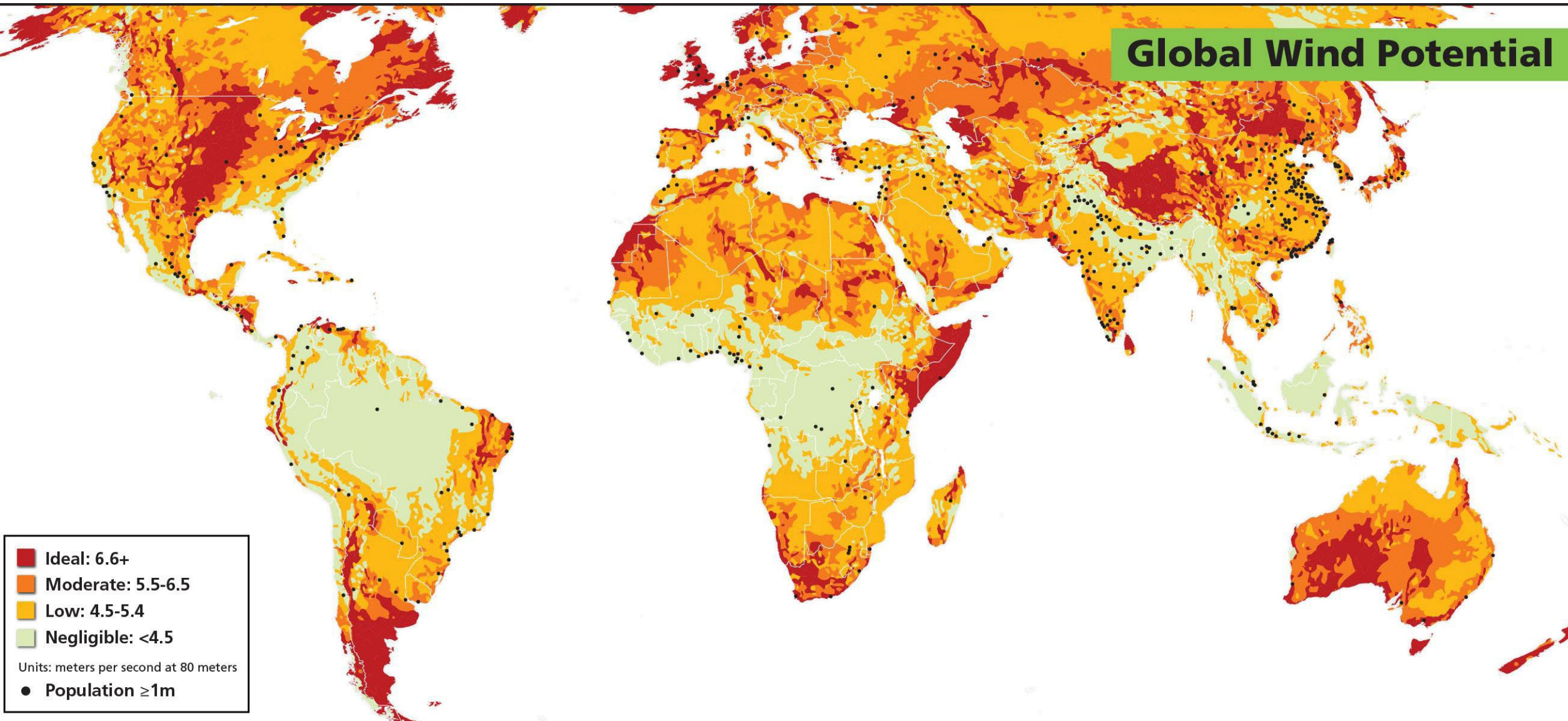
## Global Solar Potential





# The GreenTech Question

## Global Wind Potential



- Ideal: 6.6+
- Moderate: 5.5-6.5
- Low: 4.5-5.4
- Negligible: <4.5






Units: meters per second at 80 meters

- Population  $\geq 1m$








# The GreenTech Question

## Global Wind + Solar Potential

<b>Global Wind Potential</b>  <b>Ideal: 6.6+</b> Units: meters per second at 80 meters
<b>Global Solar Potential</b>  <b>Ideal: &gt;2,500</b> Units: kWh per year per square meter
 <b>Ideal solar <i>and</i> wind</b>  <b>Unsuitable</b>
 <b>Population <math>\geq 1m</math></b>

# The GreenTech Question

## Global Wind + Solar Potential within 1,000 miles of a major city

<b>Global Wind Potential</b>  <b>Ideal: 6.6+</b> Units: meters per second at 80 meters
<b>Global Solar Potential</b>  <b>Ideal: &gt;2,500</b> Units: kWh per year per square meter
 <b>Ideal solar <i>and</i> wind</b>  <b>Unsuitable</b>
 <b>Population ≥1m</b>

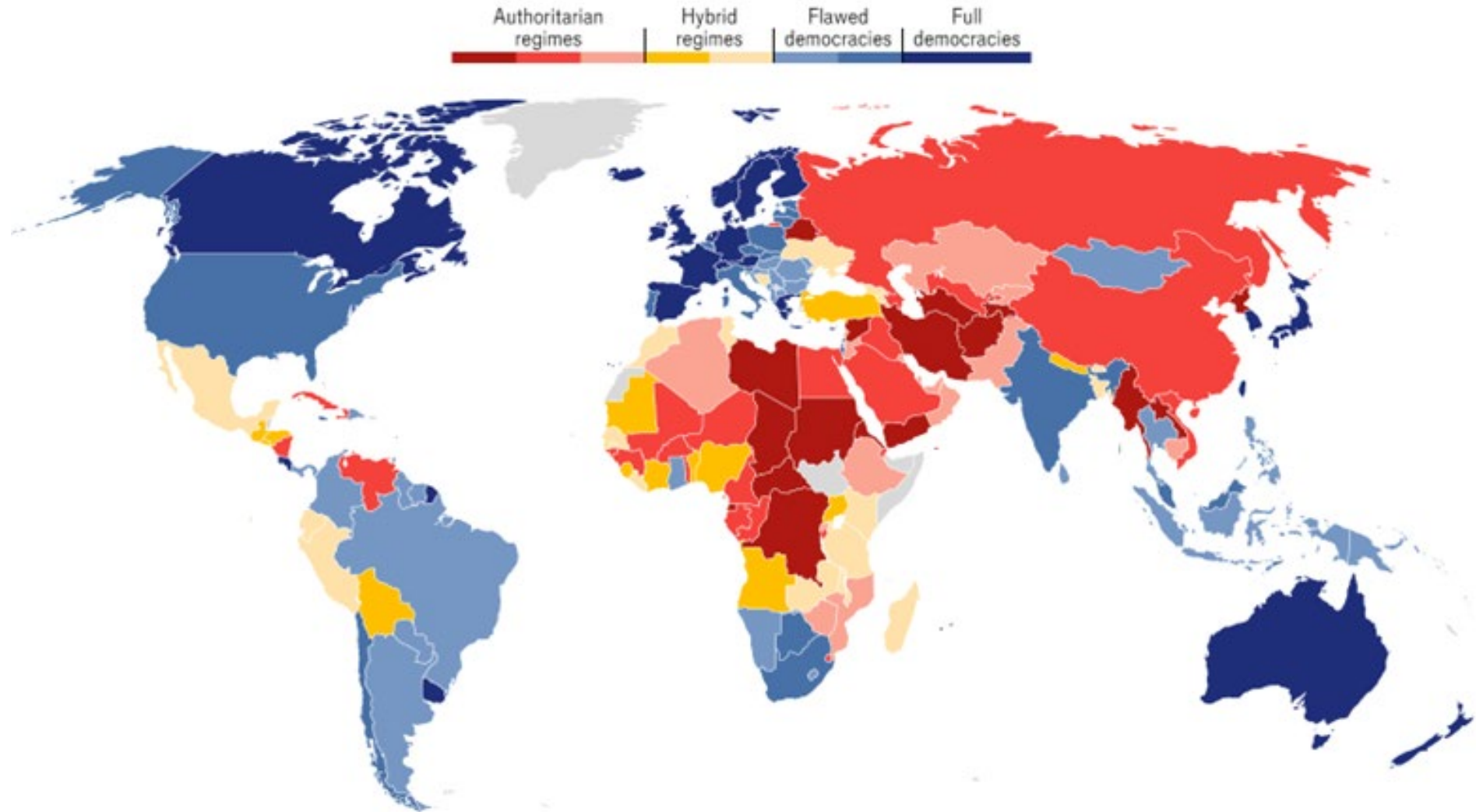
Over half of the global population lives within the circle.

Sources: NREL, DOE, IRENA, and EPA



# Democracy at Risk Around the Globe?

- ▶ The Economist's democracy index shows that only 43 of the more than 70 elections in 2024 are expected to be fully free and fair.
- ▶ 8% of the world's population live in full democracies.
- ▶ 39.4% are under authoritarian rule—up from 36.9% in 2022.



Source: The Economist, Where democracy is most at risk, February 14, 2024.



# Political Landscape – More VUCA



Source:.

# Objective & Agenda

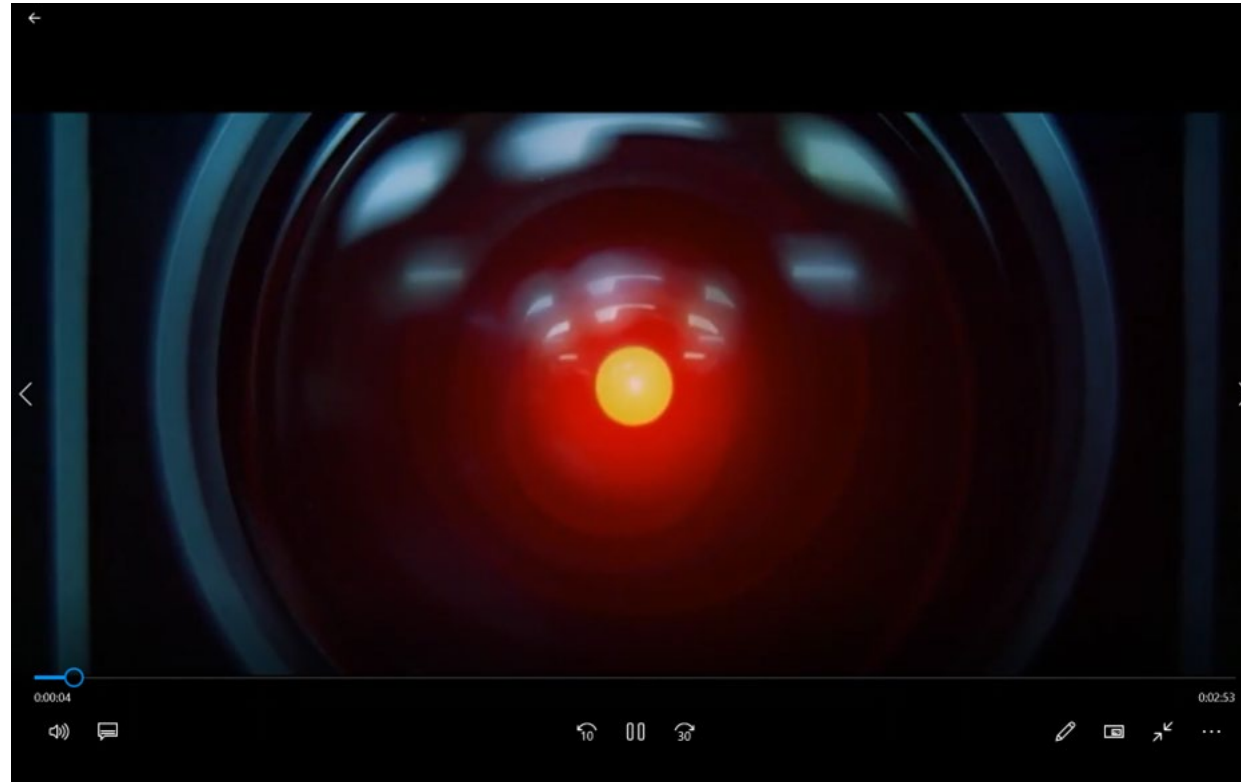
## ▶ Objective:

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# Artificial Intelligence





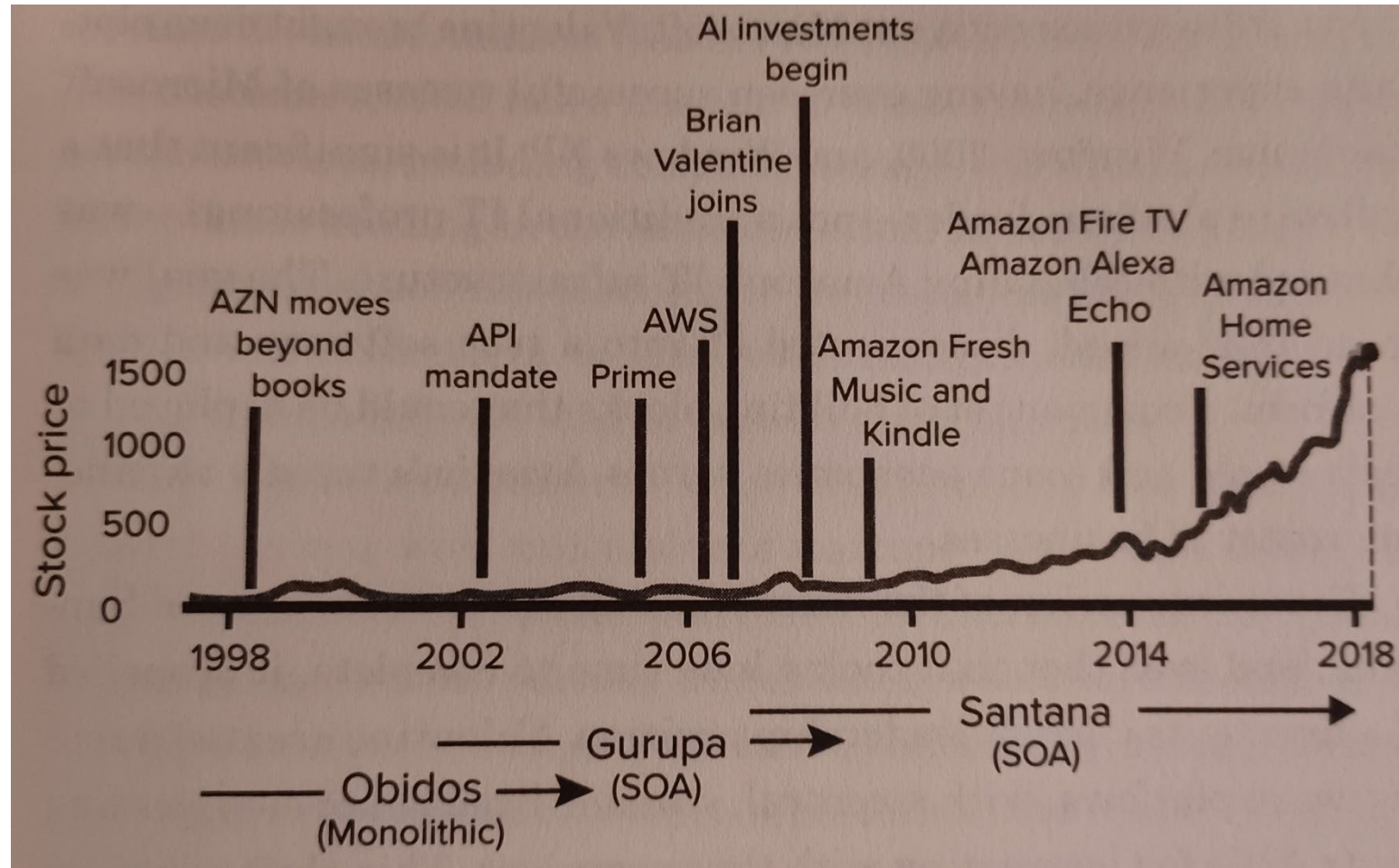
# Artificial Intelligence

- ▶ Luddites
  - 19<sup>th</sup> century English textile workers opposed to the use of cost-saving machinery and destroyed the machinery in coordinated attacks
  - They appropriated the name of Ned Ludd, an 18<sup>th</sup> century weaver of folklore fame who destroyed knitting frames in a fit of rage
- ▶ This transformation at the start of the industrial age shook the foundations of society
- ▶ We stand at a similar precipice where AI will transform our everyday personal and work lives, shaking the foundations of society



# The Power of Scope, Scale, & Learning (1 of 2)

- ▶ API Mandate built a “data” driven base
- ▶ Layered “Technology Component Libraries” on top of this base with both Artificial Intelligence and Machine Learning
- ▶ Built “Application Programming Interfaces (API)” to access knowledge
- ▶ Leveraged by “Agile Teams” to take action



Source: Iansiti, Marco, Lakhani, Karim R., *Competing In the Age of AI: Strategy and Leadership when Algorithms and Networks Run the World*, Harvard Business Review Press, Boston, MA, Figure 4-3 An Amazon Time Line, pg. 91.  
Interpretive Note: The curve depicts the Amazon stock price. Obidos, Gurupa, and Santana are the systems Amazon built to enable its operating capability to meet its scale, scope, and learning objectives

# The Power of Scope, Scale, & Learning (2 of 2)

## ► Construction and Construction Management application of AI & ML Potential

Business Model	
Value Creation	Value Capture & Sharing
Differentiation Cost Focus	Price License Promotion
Exceptional Increasing consumer value by personalization and engagement	$N * E * M$ Across many related markets (Multisided)

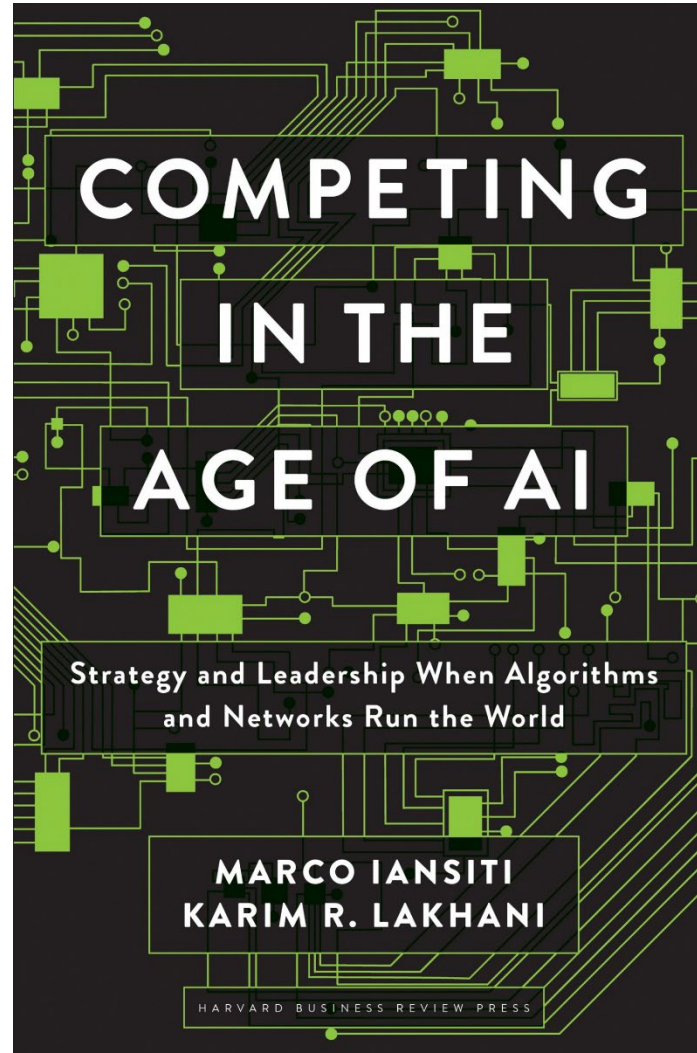
Operating Model		
Scale	Scope	Learning
Volume Complexity Customers	Variety Range	R&D Continuous Improvement IP Generation
“Zero” marginal cost network effects	Aggregation and modularity across markets	Constant innovation and AI/ML driven improvement

Source: Iansiti, Marco, Lakhani, Karim R., *Competing In the Age of AI: Strategy and Leadership when Algorithms and Networks Run the World*, Harvard Business Review Press, Boston, MA, Figure 2-1 Alignment between a company's business model and operating model, pg. 32; Figure 2-2 Value Creation and capture versus value delivery, pg. 50.

Interpretative Note:  $N * E * M$  = (the number of users) \* (user engagement) \* (monetization)



# AI Introduction, History, and “101” Concepts



# Objective & Agenda

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# Utility Industry Perceptions (1 of 5)

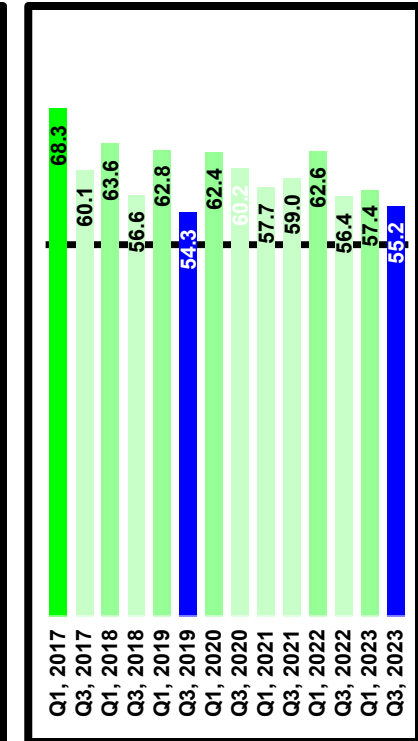
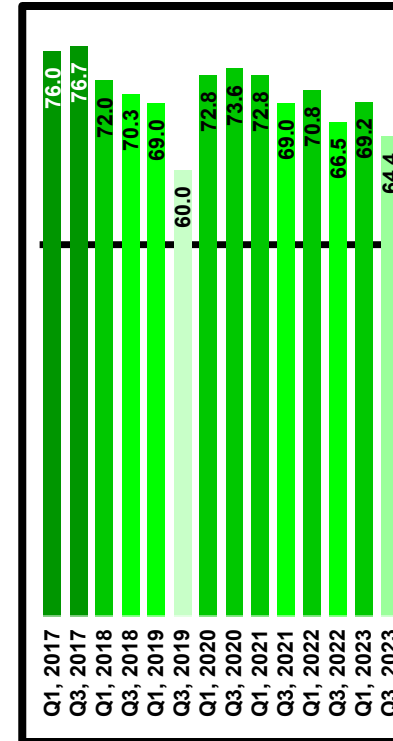
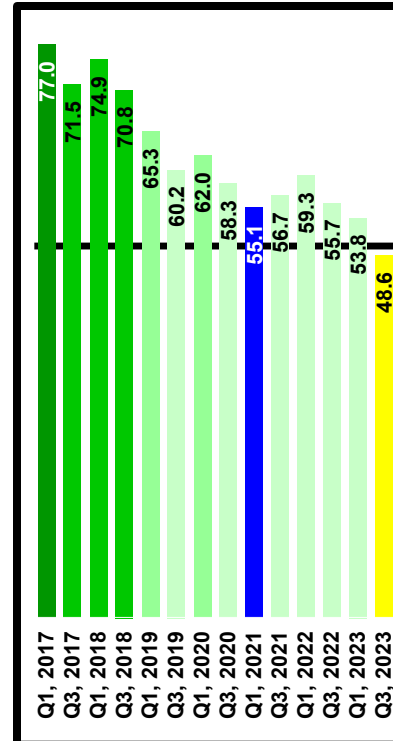
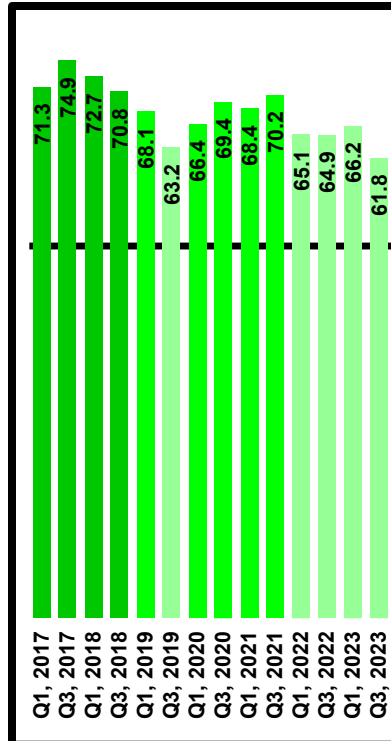
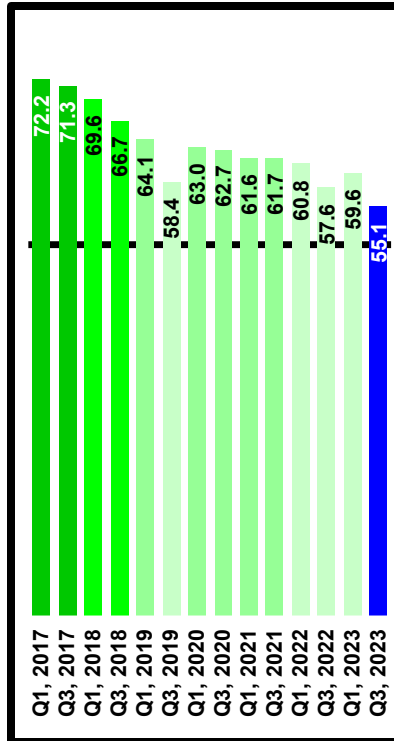
## All Utility & Contractors

## Electric Dist.

## Gas Dist.

## Telecom

## Water/Sewer



**Utility Construction Index**  
 > 50 Indicates Growth (Better)  
 < 50 Indicates Slowing (Worse)

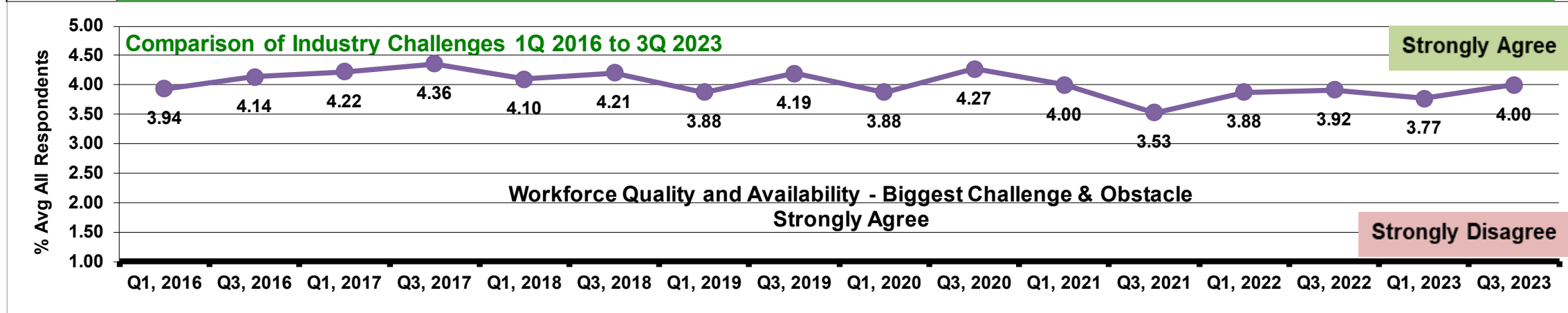
Interpretation: A reduction from 72.2 (1<sup>st</sup> Q 2017) down to 58.4 (3<sup>rd</sup> Q 2019) for All Utility Contractors indicates that while perceptions of the market are still positive, they are less positive than they were prior to 2017.

Source: Proprietary Continuum analysis of utility contractor perceptions over 2017-2023.

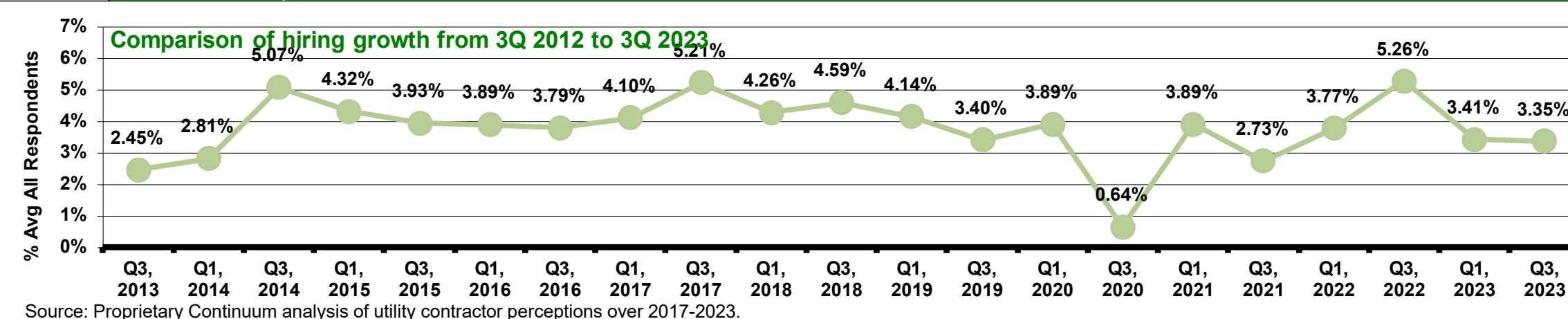


# Utility Industry Perceptions (2 of 5)

**Exhibit x Market Drivers & Constraints - Workforce Quality & Availability**



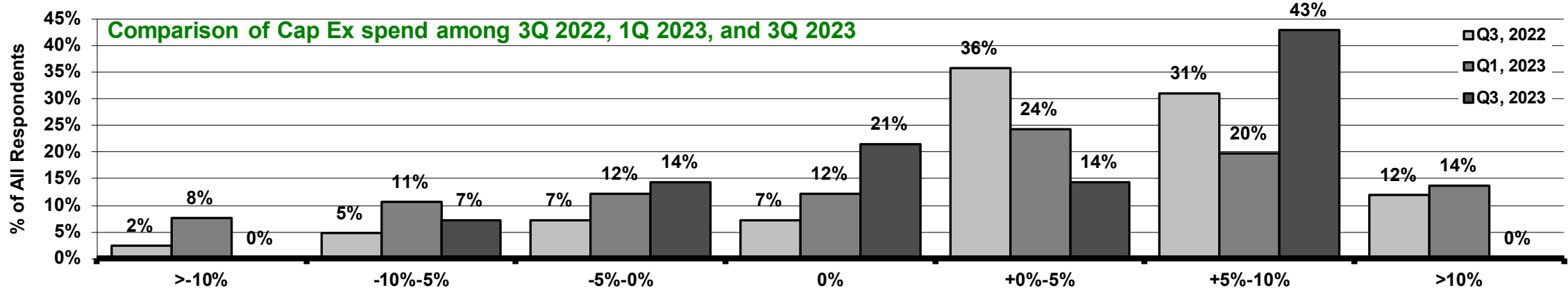
**Exhibit x What changes do you foresee in the number of fulltime direct employees in your organization for xxx? (excluding natural attrition, retirements, etc.)**



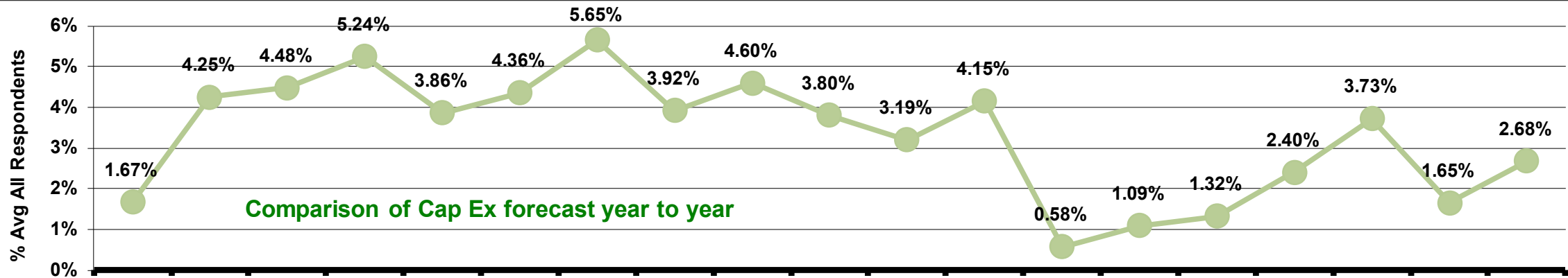
Source: Proprietary Continuum analysis of utility contractor perceptions over 2017-2023.

# Utility Industry Perceptions (3 of 5)

**Exhibit x** What changes do you foresee in your Cap Ex for facilities, equipment and other resources in <year>?



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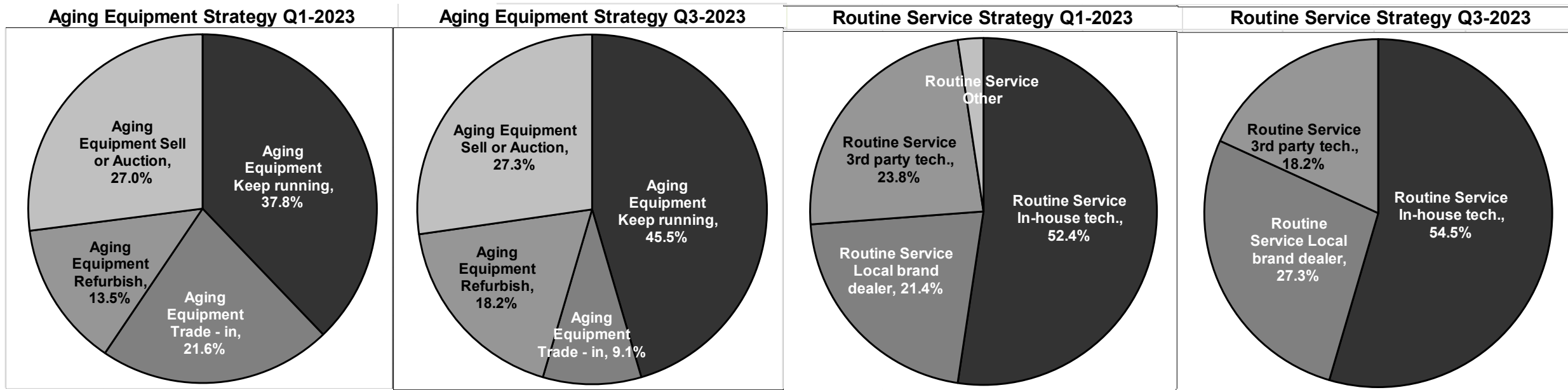


Source: Proprietary Continuum analysis of utility contractor perceptions over 2017-2023.

# Utility Industry Perceptions *(4 of 5)*

## ► 2023/2024 Management of Equipment Fleet & Assets

- Aging Equipment Strategy – Continued increase in “Keep Running” choice implying some pessimism about market dynamics – 3Q22 30%, 1Q23 38%, 3Q23 46%
- Routine Service Strategy – Reduced in-house (3Q22 58%, 3Q23 55%) and increased 3<sup>rd</sup> party (3Q22 17%, 3Q23 18%) – perhaps driven by mechanic workforce availability or use of more flexible outsourcing options

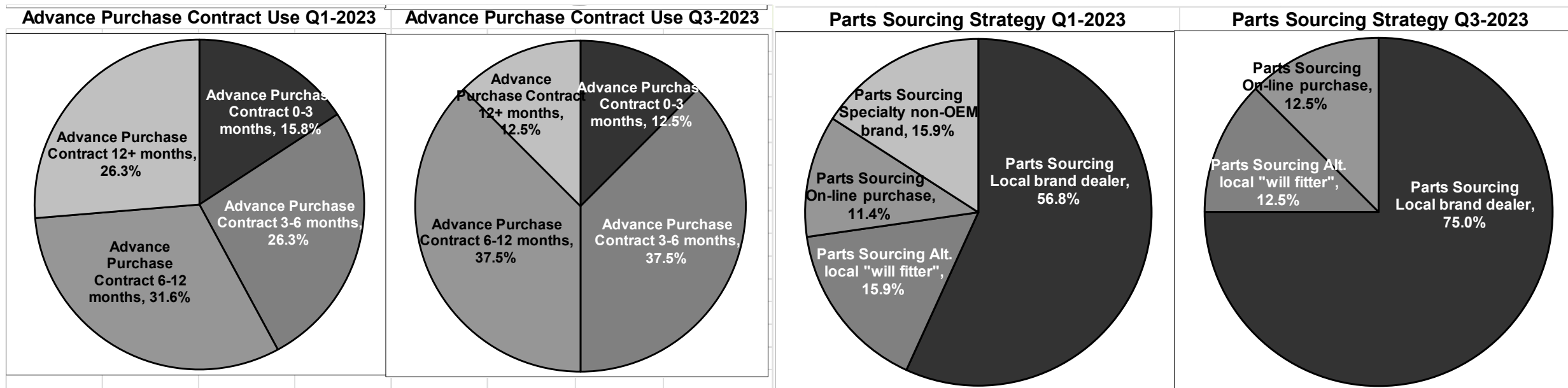




# Utility Industry Perceptions *(5 of 5)*

## ► 2023/2024 Management of Equipment Fleet & Assets *(Continued)*

- Advance Purchase Contract Use – Increased use of 6-12 month (3Q22 29%, 1Q23 32%, 3Q23 38%) or 12+ month contracts (3Q22 7%, 1Q23 26%, 3Q23 13%) pushing decision farther into the future – perhaps as a sign of pessimism
- Parts Sourcing Strategy (limited 3Q23 feedback) – Some shifting in use of non-OEM (3Q22 8%, 1Q23 16%, 3Q23 nc) and/or on-line purchase (3Q22 20%, 1Q23 11%, 3Q23 13%) use; dramatic change in local dealer and limited change in “will fitter” use

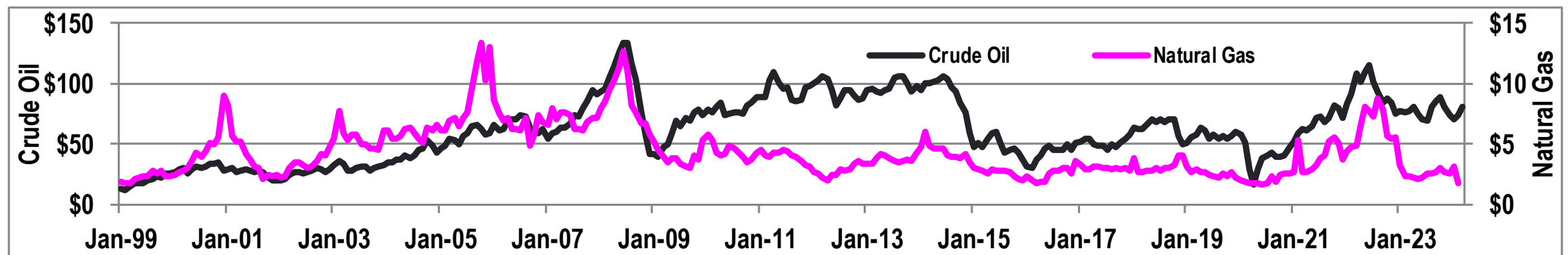


# US Economic Overview *(1 of 5)*

- ▶ This era is perhaps the best time to be a competent utility contractor
- ▶ Federally mandated spending, IIJA, IRA, regulation, and service demand have formed a floor under utility markets that will mitigate any general recession.
  
- ▶ Short-Term Recession Potential Reduced: We have dodged a short-term bullet from the Fed Reserve who have successfully engineered a “soft” landing.
  - There will be an economic slowdown – right now, it will be short and shallow – all economic expansions end the same way!
- ▶ Business Pessimism vs. Optimism: Capital spending is being chewed up by inflation, additional non-construction related cost (permit, hard surface restoration, etc.) and is decelerating slightly across the board – anticipating further slowdown and desire to take a more conservative financial posture given risks perceived.
  - Interest rates will remain high (5%+) through nearly all of 2024, Fed will continue to delay reducing rates
  - Continued infrastructure capital spending pull back by private sector – Federal/State infrastructure spending continues to accelerate

# US Economic Overview *(2 of 5)*

- ▶ Energy Markets Stabilizing: Natural gas, gasoline, diesel, etc. generally trending up slightly in last several months – not too high and not too low.
- ▶ Housing Market Volatility: Housing starts continue to decelerate from 2021, yet are still targeted at 1+ million, a rule of thumb of still healthy market
  - Mortgage rates will remain in the 5-7% range and while high in comparison to recent experience, this rate is in alignment with historical norms.

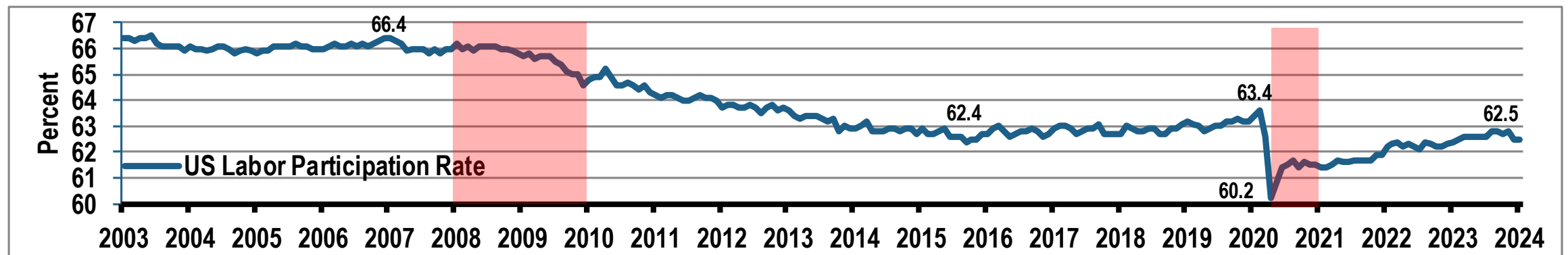


Source: Energy Information Administration, Crude Oil Cushing OK WTI Spot Price FOB \$/bbl), Natural Gas (Henry Hub).



# US Economic Overview *(3 of 5)*

- ▶ Continued Growth Slowing: Federal Reserve wants to slow the economy and bring down inflation to 2.0% target – still not achieved – no lowering of rates in near term
  - Job additions still very high, traditional unemployment rates are very low, workforce participation flat/falling

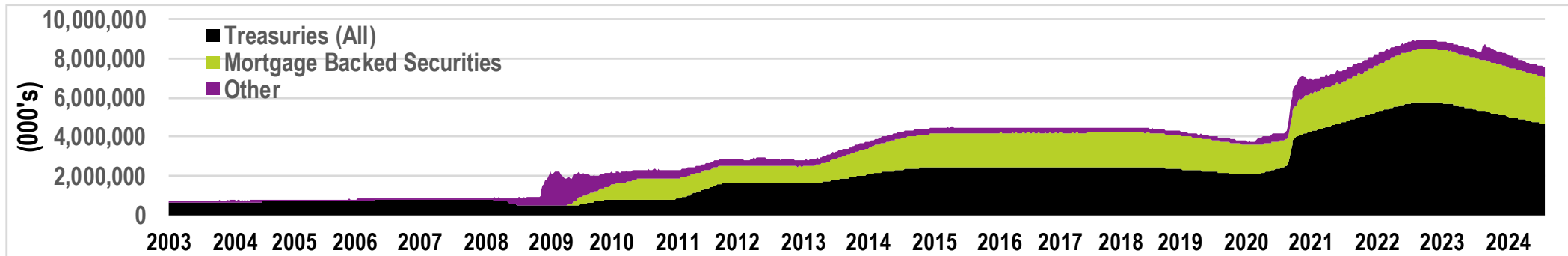


Source: Bureau of Labor Statistics unemployment and workforce participation raw data, Continuum analysis.

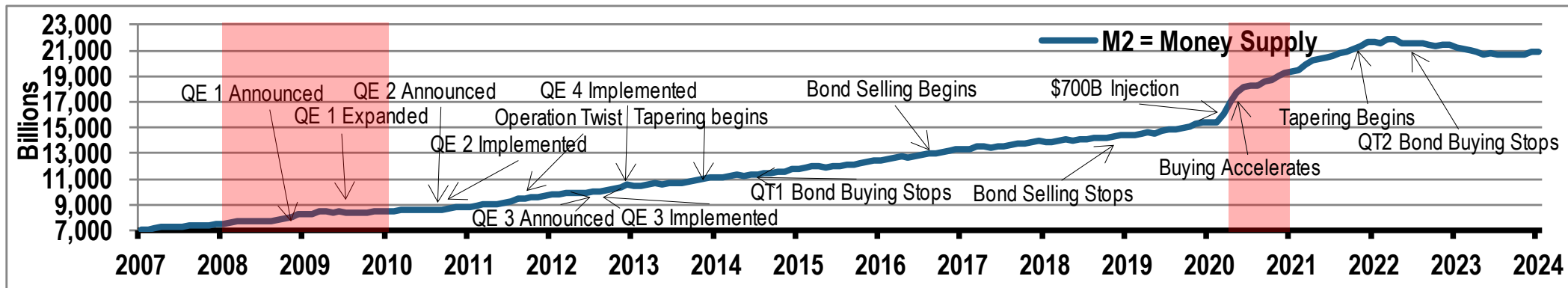
# US Economic Overview *(4 of 5)*

## ► What are we worried about?:

Fed  
Balance  
Sheet



Money  
Supply

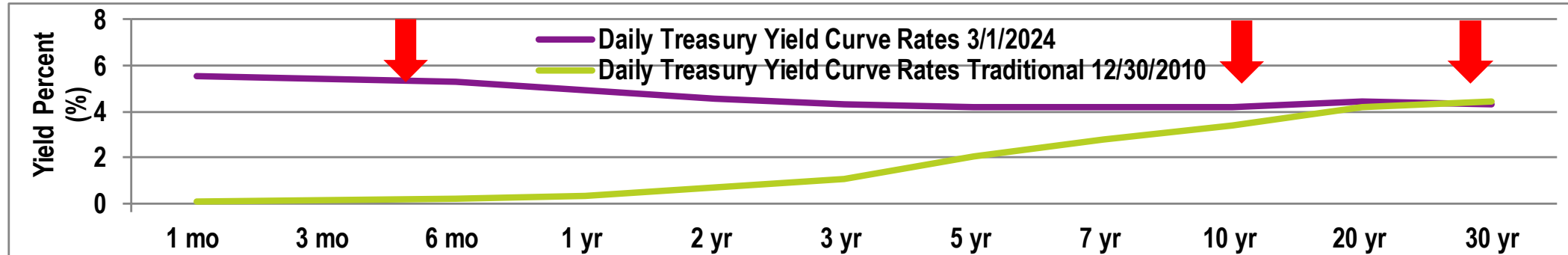


Source: Board of Governors of the Federal Reserve System, Money Stock as measured by M2.

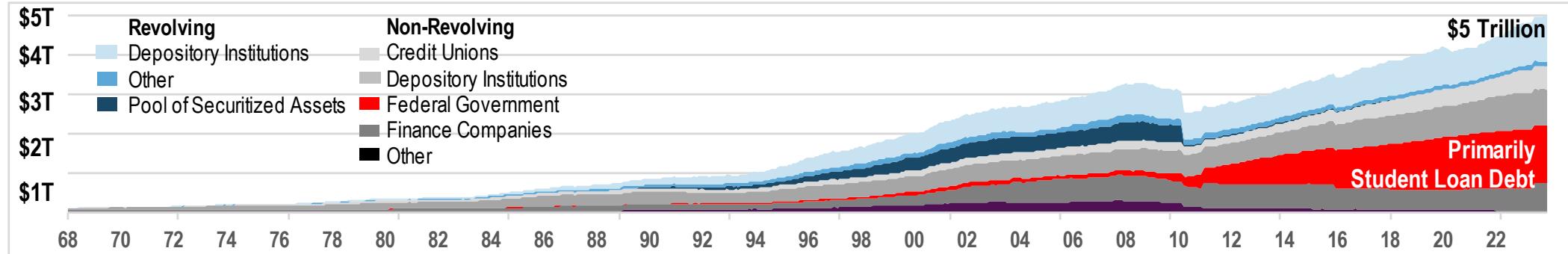
# US Economic Overview (5 of 5)

## ► What are we worried about?:

### Yield Curve



### Personal Debt



### Federal Debt

Federal Debt held by the public - \$34 Trillion  
Intergovernmental Borrowing - \$6 Trillion  
Unfunded "Promises to Pay" - \$123 Trillion

Source: Board of Governors of the Federal Reserve System, Yield Curve Data as of 3/1/24;

# Thank You

## **MARK BRIDGERS**

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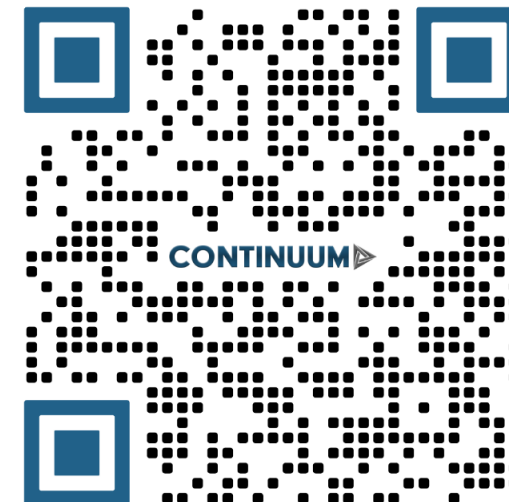
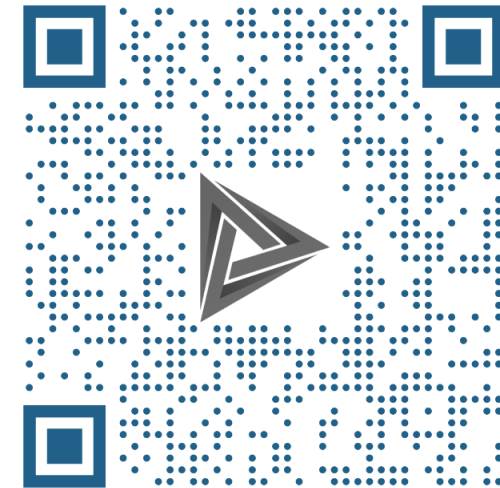
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# Mark Bridgers

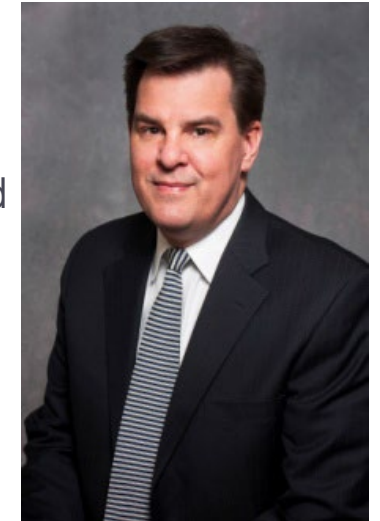


Mark founded and leads a Utility Vertical Market team team at Continuum Capital. He works with gas/electric utilities, power generators, pipeline companies, and energy companies. As a recognized expert in capital construction and operational challenges, Mark was recently honored with membership in the Society of Gas Operators (SOGO) and the Guild of Ancient Suppliers.

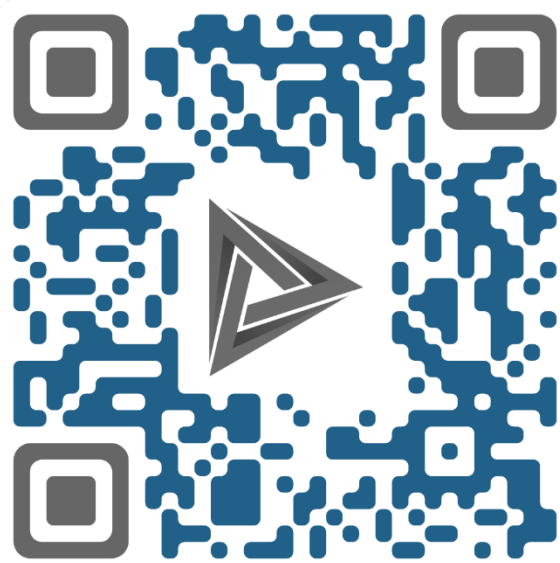
Mark helps firms prepare for and successfully navigate “strategic transitions.” His passion is helping organizations achieve breakthrough innovations through collaborative or integrated relationships. He is the architect of an approach for integrated service provider management referred to as the “Extended Enterprise” among construction industry participants.

Mark is an avid educator, trainer, and writer with more than 20 years of industry expertise including financial performance analysis; development and implementation of tools to reduce construction cost, life-cycle cost, and operational friction; restructuring of processes and procedures - often times using LEAN Construction techniques; and leader development.. He is a recognized expert in capital construction and operational challenges . Mark is also author of over 150 articles and research papers published internationally in industry journals, including ENR, PE – The Magazine for Professional Engineers, Pipeline & Gas Journal, Utility Contractor (NUCA), Underground Contractor, Electric Energy (RMEL) and Electric Perspectives (EEI).

Mark holds a master’s degree in business administration from the University of Virginia’s Darden school of Business and a bachelor’s degree in financial management from Clemson University. In addition, he earned the designation of Chartered Property and Casualty Underwriter (CPCU) and Associate in Reinsurance (ARe).



# About Continuum



Continuum Capital is a boutique management consulting, training, investment banking, and capital services firm providing services to the worldwide construction industry. We provide services in the areas of strategic market information, acquisition integration, ownership transition, private equity financing, project delivery improvement, management and field-level training, strategic planning, strategic sourcing, and productivity improvement.

<b>Mission Statement</b>	Transform capital asset construction worldwide.
<b>Founded</b>	2011
<b>Office Locations</b>	Raleigh, NC; Birmingham, AL; Denver, CO; Dallas, TX; Chicago, IL; Baltimore, MD
<b>Number of Employees</b>	9
<b>Geographic Market</b>	United States, Canada, Latin America, Europe, and Pacific Rim
<b>Continuum Capital's Clients</b>	Contractors; engineers; architects; government agencies; utility companies; manufacturers and distributors of construction materials and construction equipment
<b>Consulting Clients</b>	15 per year (90% of whom are repeat customers)
<b>International Speaking Locations</b>	Brazil, Canada, France, Mexico, South Korea, United Arab Emirates
<b>Professional Lecture &amp; Speaking</b>	20 per year
<b>Knowledge &amp; Database Access</b>	Proprietary database tools for benefit of clients: <ul style="list-style-type: none"> <li>a) Utility construction index from 2009 to present;</li> <li>b) Utility construction field productivity improvement techniques from 1700 surveys;</li> <li>c) Utility contractor financial performance comparison of 50+ publicly traded and privately held firms;</li> <li>d) National and regional utility construction spending history and forecast</li> <li>e) Gas utility "Best Practice" database and knowledge defining superior performance from 2000 to present</li> <li>d) 35,000 contact database to support acquisition, research, and industry knowledge</li> </ul>
<b>Corporate Web Site</b>	<a href="http://www.ContinuumCapital.net">www.ContinuumCapital.net</a>
<b>Energy &amp; Utility Team Leader</b>	Mark Bridgers – President & Founder Continuum Capital; Director Utility Vertical Market

# About Continuum

Founded in 2011, Continuum Capital provides boutique management consulting, capital services, and training, to the energy, utility, pipeline, and industrial markets supporting the successful and efficient planning, design, construction, and operations of capital assets.

Continuum utilizes a proprietary “SMART Advisory” methodology to deliver innovative and customized solutions to energy, utility, or pipeline owners/operators who want to transform their capital asset construction processes. Service providers to these firms, including underground and overhead contractors and engineers, are integrated into the transformation process, frequently forming what Continuum refers to as an “Extended Enterprise.”

Continuum’s experienced consultants can assist your business with Capital Construction/O&M Unit Effectiveness, Program Management Office Transformation, Risk Management/Mitigation for Capital Asset Construction, Project Management/Controls Installation, Process Analysis & Improvement, Management of RFI / RFQ / RFP / Procurement, Extended Enterprise/Alliance Formation, and Field Productivity Assessment & Improvement.

Additional and specialized services include: M&A or Due Diligence Support, Market Strategy, Market Research, Cost Analysis & Savings, Cost to Complete Analysis, Cost to Convert to Best Purpose, and Cost to Restore Asset.

Let Continuum transform your business!

**S** – Strategic Relations

**M** – Measurable Objectives

**A** – Aligned Sourcing

**R** – Risk Controlled

**T** – Technology Enabled

