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ScottMadden's Energy Industry Update: Money, Money, Money

Webinar



November 9, 2022





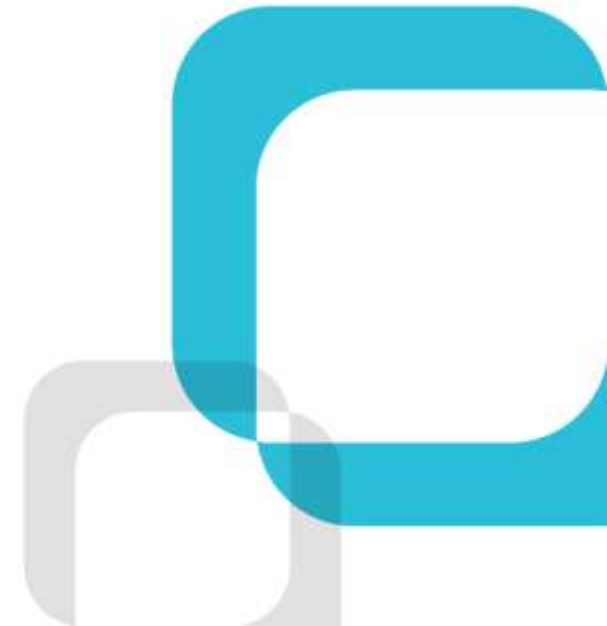
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Cristin Lyons

Partner and Energy Practice Leader

Cristin Lyons is a partner with ScottMadden and leads the firm's energy practice. Since joining the firm in 1999, Cristin has consulted with myriad clients on issues ranging from process and organizational redesign to merger integration to project and program management. Cristin led the firm's grid transformation practice for three years before becoming the energy practice lead. She is a frequent speaker and panelist at conferences across the country. Cristin earned a B.A. in political science and Spanish from Gettysburg College and an M.B.A. from the Cox School of Business at Southern Methodist University. She is also a member of Phi Beta Kappa.



Energy Is Who We Are

ScottMadden is a management consulting firm with more than 35 years of deep, hands-on experience. We deliver a broad array of consulting services—from strategic planning through implementation—across the energy utility ecosystem.

Our energy practice covers the following areas:



GENERATION



**RATES &
REGULATION**



**TRANSMISSION &
DISTRIBUTION**



**ENERGY
MARKETS**



GRID EDGE



**ENERGY
CORPORATE
SERVICES**



Energy Cost and Affordability





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Talha Sheikh

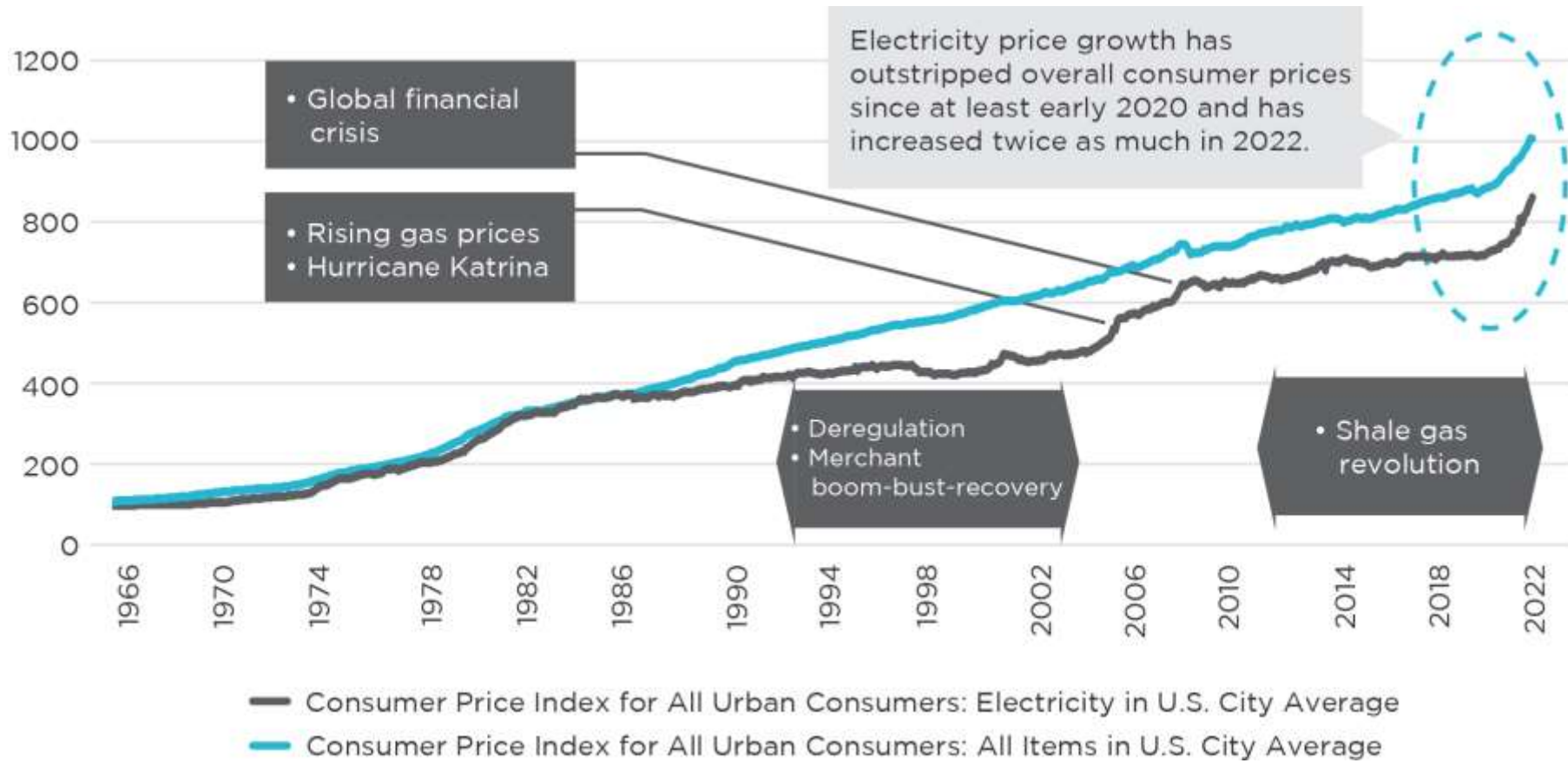
Director

Talha Sheikh is a director at ScottMadden and co-leads the rates & regulation community of practice. Talha has more than seven years of consulting experience in the energy industry, assisting on numerous regulatory initiatives with leading U.S. electric, gas, and water utilities. These include regulatory policy and strategy support, business planning models, market assessments, class cost of service and rate design studies, revenue requirement development, and alternative ratemaking. Talha earned an M.B.A. from the University of South Carolina, Moore School of Business and a B.B.A. from the Institute of Business Administration, Karachi.



Electric Cost Increases Outpacing General Inflation

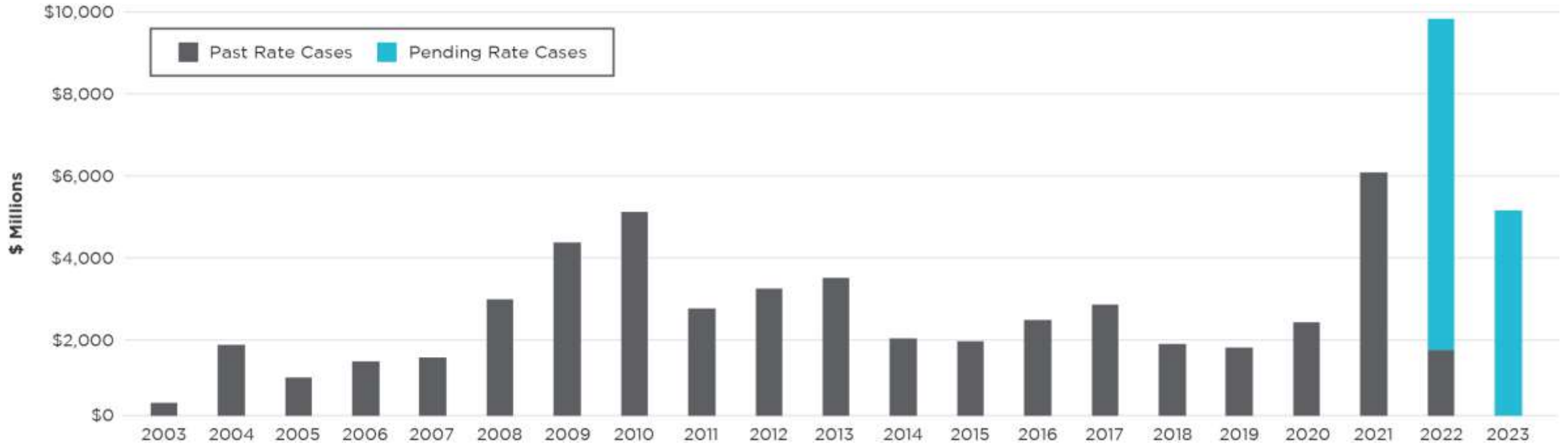
Total Consumer Price Index vs. Electric Consumer Price Index (Monthly) (Index: Jan. 1960=100)



Some drivers: (1) infrastructure investments and (2) rising natural gas prices

Rate Increases Coming

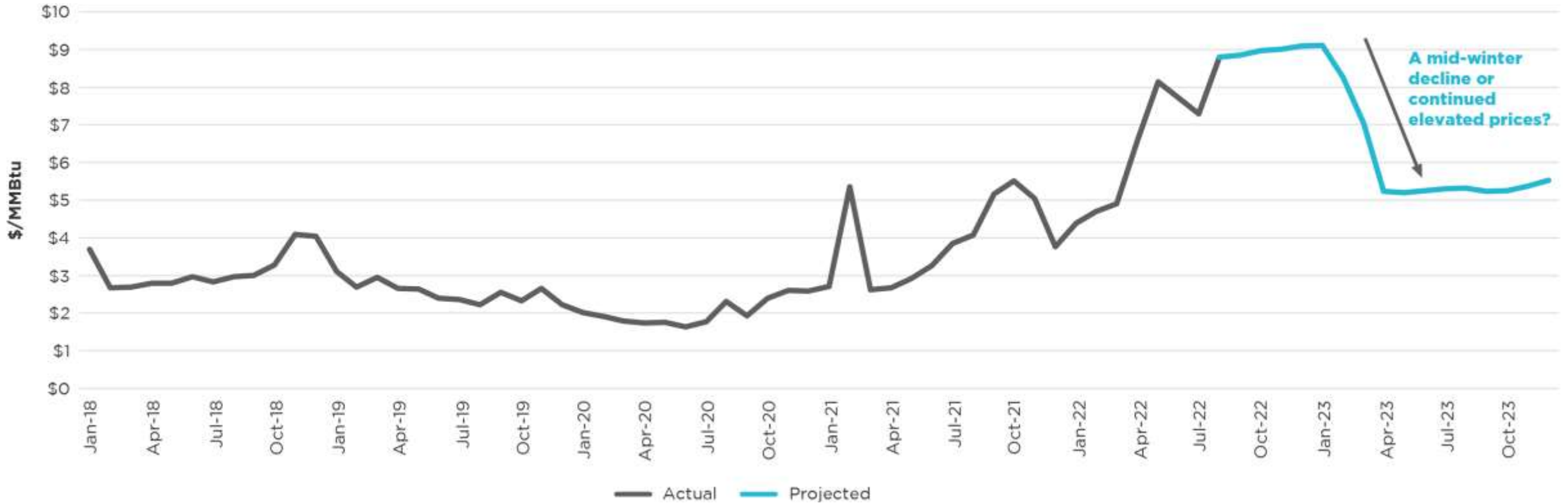
Past and Pending U.S. Electric Utility Rate Increases by Year (2003–2023) (\$ Millions)



Electric utilities are planning—and in some cases are mandated—to significantly grow investment in all elements of the electricity value chain (G, T, and D) as part of energy transition.

Rising Natural Gas Prices – Transitory?

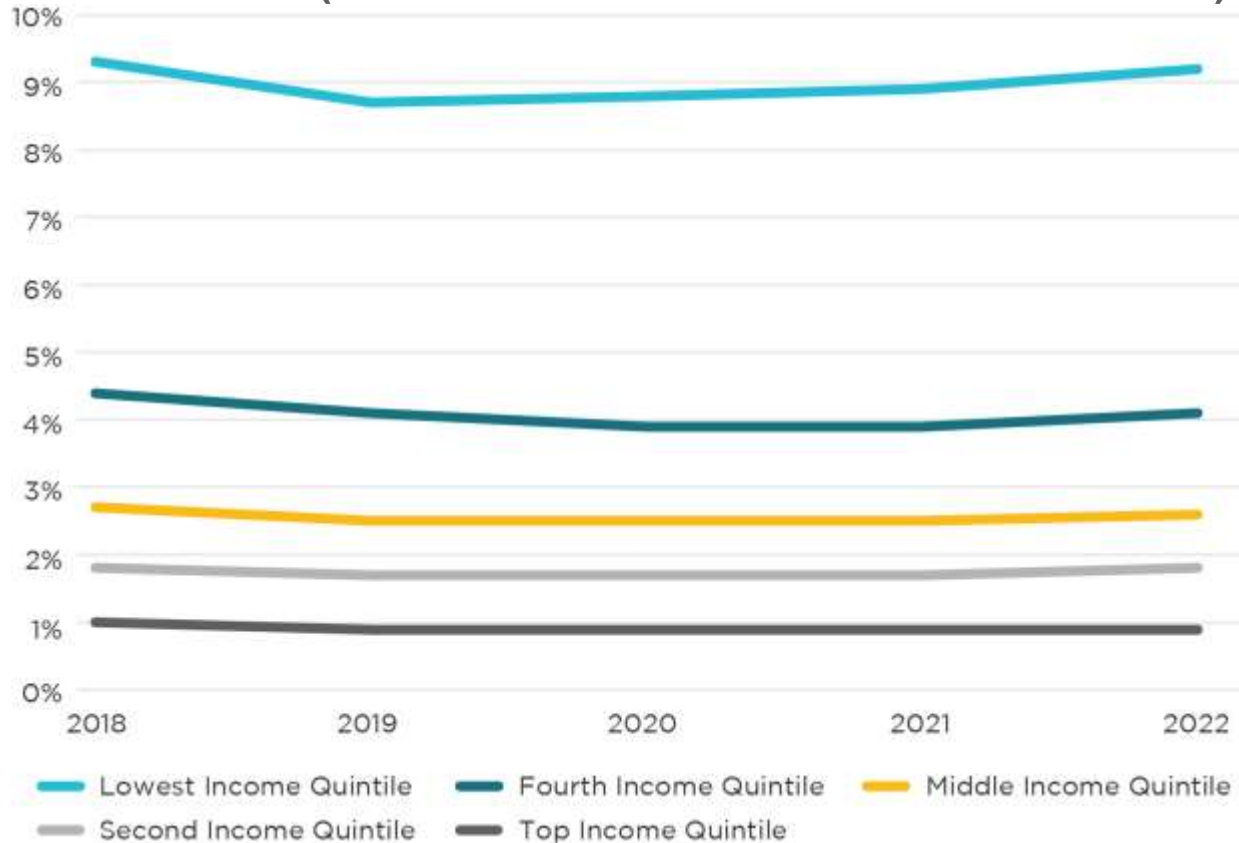
Actual and EIA Forecasted Henry Hub Monthly Natural Gas Price (\$/MMBtu) (2018–2023)



Since 2020, gas prices have increased due to higher power generation demand, lower inventories, and global LNG demands. However, is this price trend “transitory” or “end of an era”?

Affordability Remains a Focus

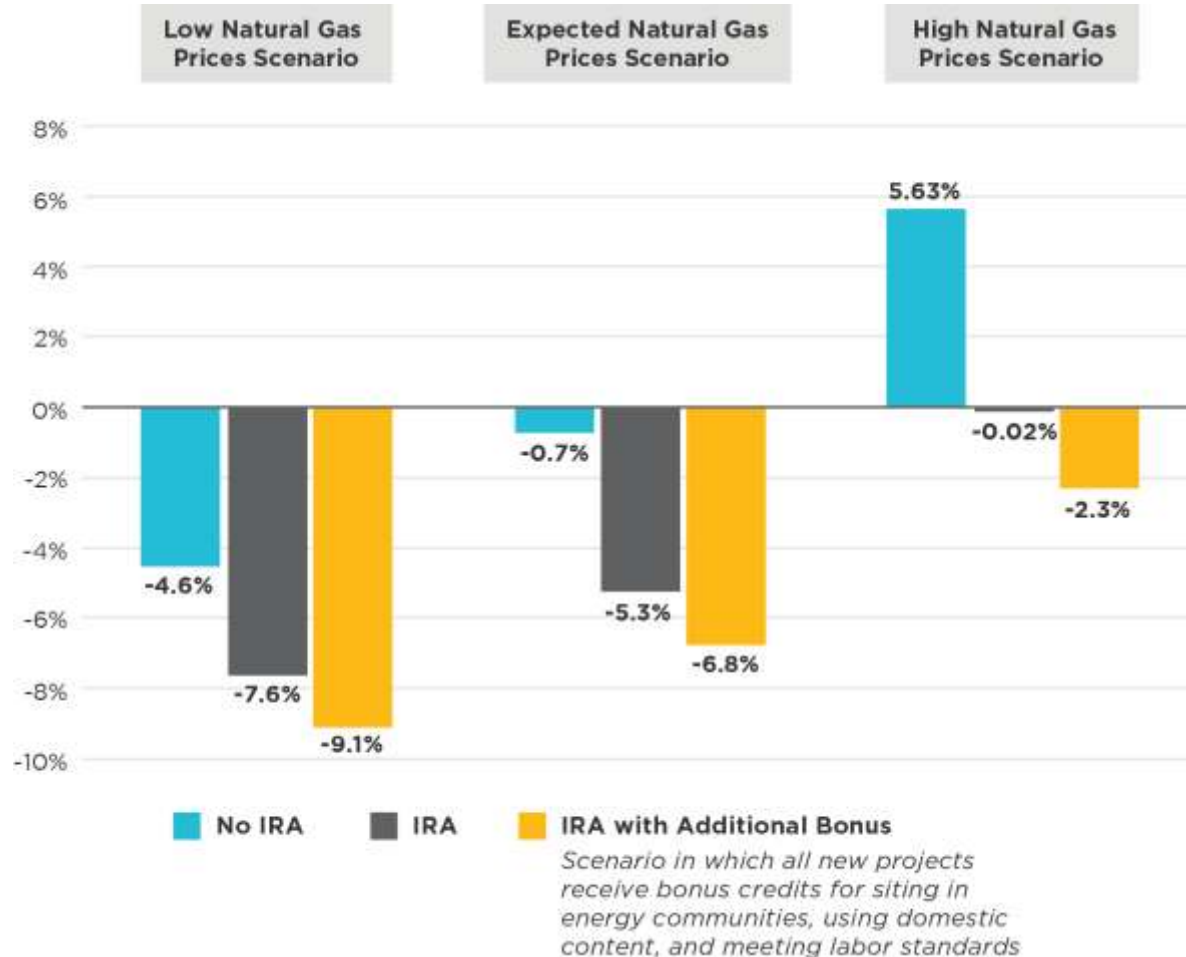
U.S. Household Percentage of Income Spent on Electricity by Income Tier (2018–2020 Actual and 2021–2022 Estimated)



Utilities and regulators will need to balance variables of net zero, reliability and resilience, and energy affordability.

Inflation Reduction Act to Temper Cost Increases?

Projected Change in Average Retail Electricity Prices (2023–2032)
With and Without Inflation Reduction Act of 2022



- IRA components that may help reduce costs:**
- Clean energy production and investment tax credits
 - Government investment assistance
 - Energy efficiency and electrification incentives

Key Takeaways

Cost and Affordability Short- and Long-Term Drivers

Internal vs. External

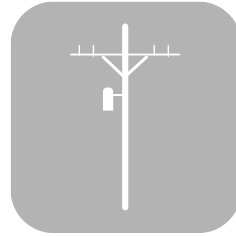
- The recent rate increases have been driven by both internal factors (e.g., utility investments, policy initiatives) and external factors (e.g., gas prices, global events).
- Where the future takes us depends on both.

There May Be “Wild Cards”

- If the natural gas trend is truly “transitory,” the near-term rate pressure may ease.
- The IRA, electrification, and demand response programs may also temper rate increases.

Need to Strike a Balance

- Regulators will need to strike a balance between achieving policy objectives, ensuring safe and reliable service, and addressing affordability concerns.



Integrated Distribution Planning





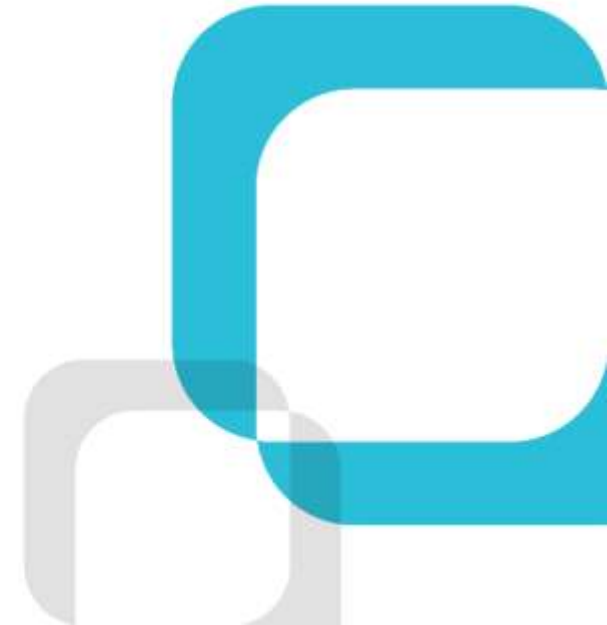
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Josh Kmiec

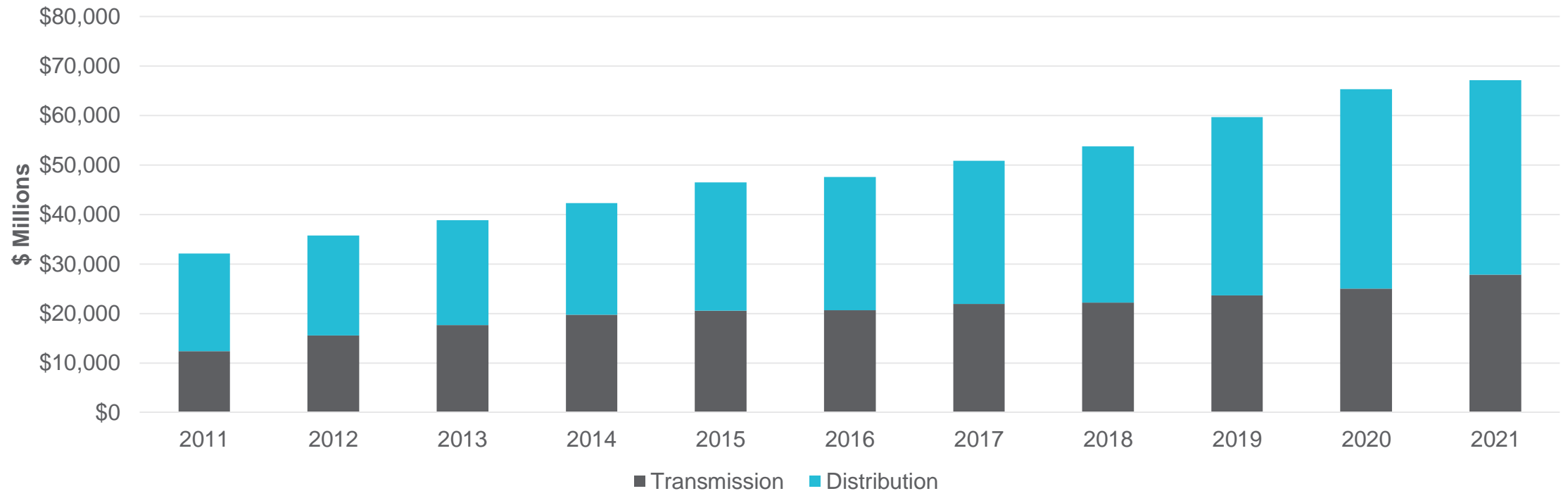
Director

Josh Kmiec is a director at ScottMadden and co-leads the transmission and distribution community of practice. Josh joined the firm in 2014 after receiving an M.B.A., with concentrations in consulting, sustainability, and marketing, from the University of North Carolina Kenan-Flagler Business School. His experience includes work in grid transformation and integration of distributed energy resources, regulatory reform, grid modernization, energy efficiency, post-merger integration, and electric vehicles. Prior to working at ScottMadden, Josh served as an intelligence officer in the U.S. Air Force for eight years. In addition to an M.B.A., he received an M.A. in international relations from the University of Oklahoma.



Continued Growth in T&D Construction Expenditures

Investor-Owned Electric Utility Construction Expenditures for Transmission and Distribution (\$ Millions)



T&D investment has been growing steadily for the past decade and is expected to continue to grow over the next 10 years.

Typical Elements of IDPs



Traditional T&D and Grid Mod

- System expansion
- Storm hardening
- Distribution automation
- Undergrounding



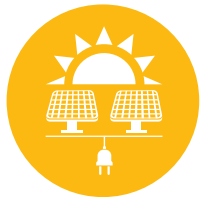
Tools and Systems

- Communications infrastructure
- Advanced Distribution Management System (ADMS)
- DER Management System (DERMS)



Advanced Forecasting and Planning

- DER and electrification forecasts
- Stakeholder inputs in process
- Integrated and scenario planning
- Non-wires alternatives



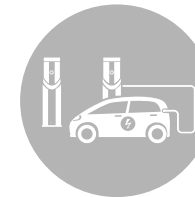
Enabling DERs

- Hosting capacity maps
- System and customer data sharing
- Interconnection process



Benefit-Cost Analysis

- Evaluating non-traditional and some traditional solutions
- Locational benefits defined



Electrification

- EV-charging infrastructure
- Conversion to electric building and water heating

Distributed Energy Resources and Electrification Drive a Planning Rethink

States with Distribution Planning Requirements

	REQUIREMENTS		STATES		California	Colorado	Delaware	District of Columbia	Florida	Hawaii	Illinois	Indiana	Maine	Maryland	Massachusetts	Michigan	Minnesota	Nevada	New Hampshire	New Jersey	New York	Ohio	Oregon	Pennsylvania	Rhode Island	Texas	Utah	Vermont	Virginia	Washington
Distribution system plan requirement	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Grid modernization plan requirement	✓				✓				✓						✓		✓		✓		✓									
Hosting capacity analysis/mapping requirement	✓			✓	✓			✓	✓						✓	✓	✓	✓	✓	✓	✓									
Non-wires alternatives/location value requirements	✓	✓	✓	✓	✓	✓	✓		✓				✓			✓	✓	✓	✓	✓	✓				✓					
Storage mandates or targets	✓														✓			✓		✓	✓		✓						✓	
Benefit-cost methodology/guidance	✓												✓					✓	✓	✓	✓				✓					
Storm hardening requirements									✓					✓														✓		
Required reporting on poor-performing circuits and improvement plans		✓	✓		✓			✓		✓				✓	✓		✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

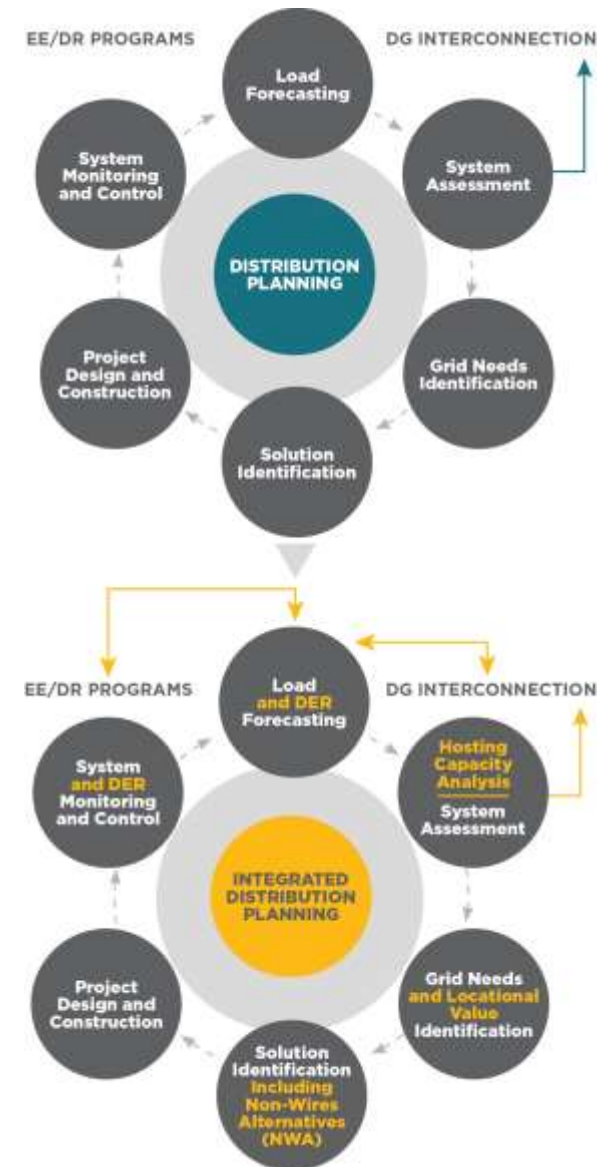
With increased distribution investment, a growing number of states are requiring longer-term planning that accounts for growing DERs and evolving policy priorities, including decarbonization, electrification, and environmental justice.

Common Challenges

Many of the same challenges related to IDPs tend to persist in various jurisdictions.

- New objectives for grid planning
- The “integrated” in integrated distribution planning
- Affordability
- Benefit-cost frameworks
- Identification of benefits across service territories
- Utility performance metrics

Transitioning to IDP



Key Takeaways

Distribution Planning Is Poised to Become More Complex

T&D Investment Increasing

- Increased DER adoption, beneficial electrification, utility-scale renewables, along with aging infrastructure will all drive increased T&D investment.
- Beyond increased capacity needs, requirements for a more flexible, reliable, and resilient grid will also translate into T&D investments.

IDPs as Policy Vehicles

- Utilities are increasingly being directed to lay out plans for meeting policy objectives within IDPs and sometimes are incented to do so.
- The costs to meet policy objectives must be balanced with core distribution investments while maintaining affordability.

Many Challenges Remain

- Utilities will need to increase integration and coordination (internal and external) to meet a jurisdiction's objectives for IDPs.
- There is much work to be done to define how plans are developed, benefits are defined, and costs are justified.



Inflation Reduction Act of 2022





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Paul Quinlan

Energy and Clean Tech Manager

Paul Quinlan is a clean tech manager with ScottMadden. In this role, he assists clean energy and utility clients with market research, strategic planning, business planning, modeling, and due diligence evaluations. He co-leads ScottMadden's grid edge community of practice. Prior to joining ScottMadden, he worked as managing director of the North Carolina Sustainable Energy Association, a nonprofit organization focused on renewable energy and energy efficiency policy issues. He has also taught energy courses at North Carolina State University, served on the board of directors of Clean Energy Durham, and served as a grand jury member for the Helsinki Challenge. Paul earned a master of public policy and a master of environmental management from Duke University and a B.S. from the University of Notre Dame.



Impact: Sweeping in Scope and Scale



**Strategic approach
focuses on reducing costs**



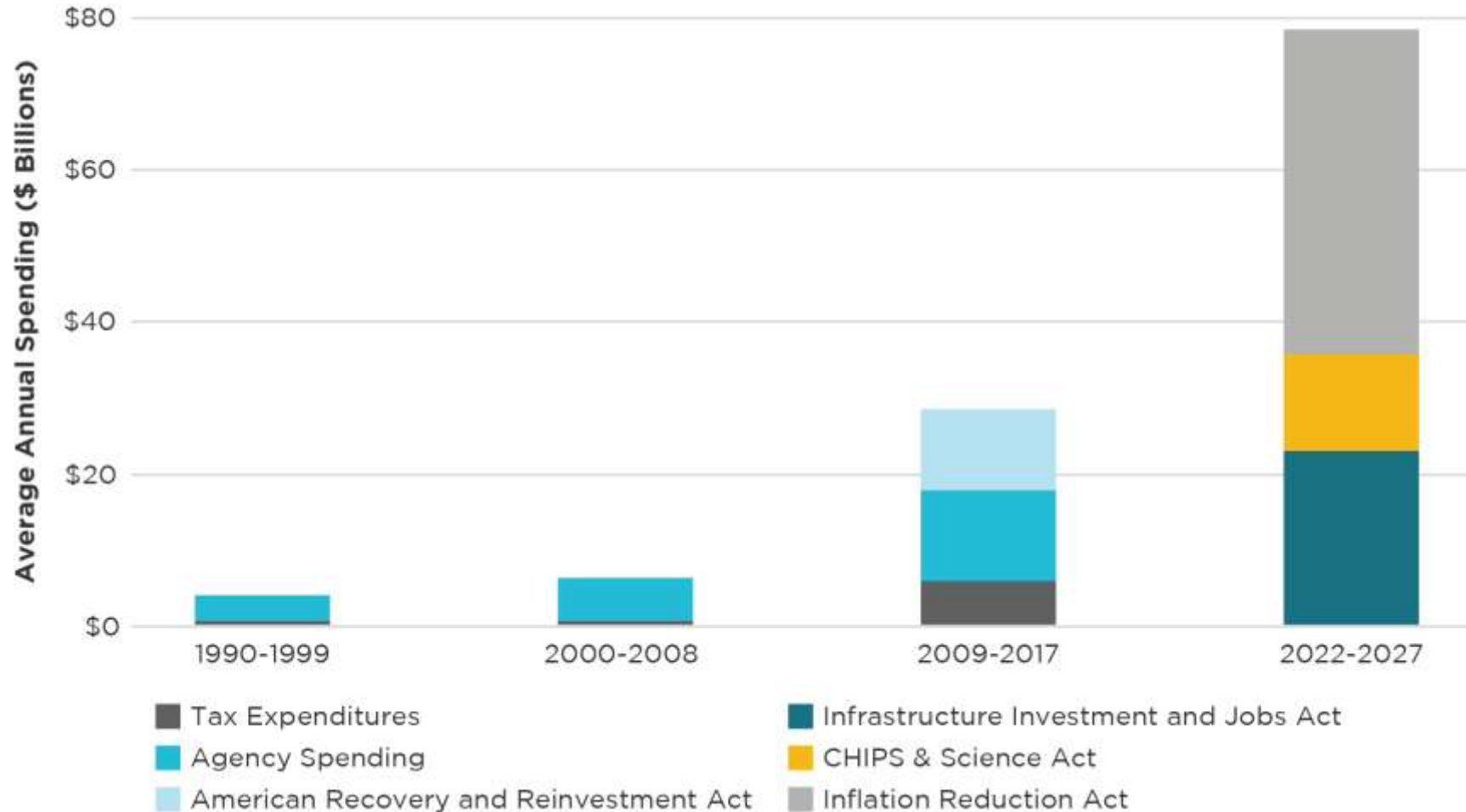
**Desired outcome centers
on rapid decarbonization**



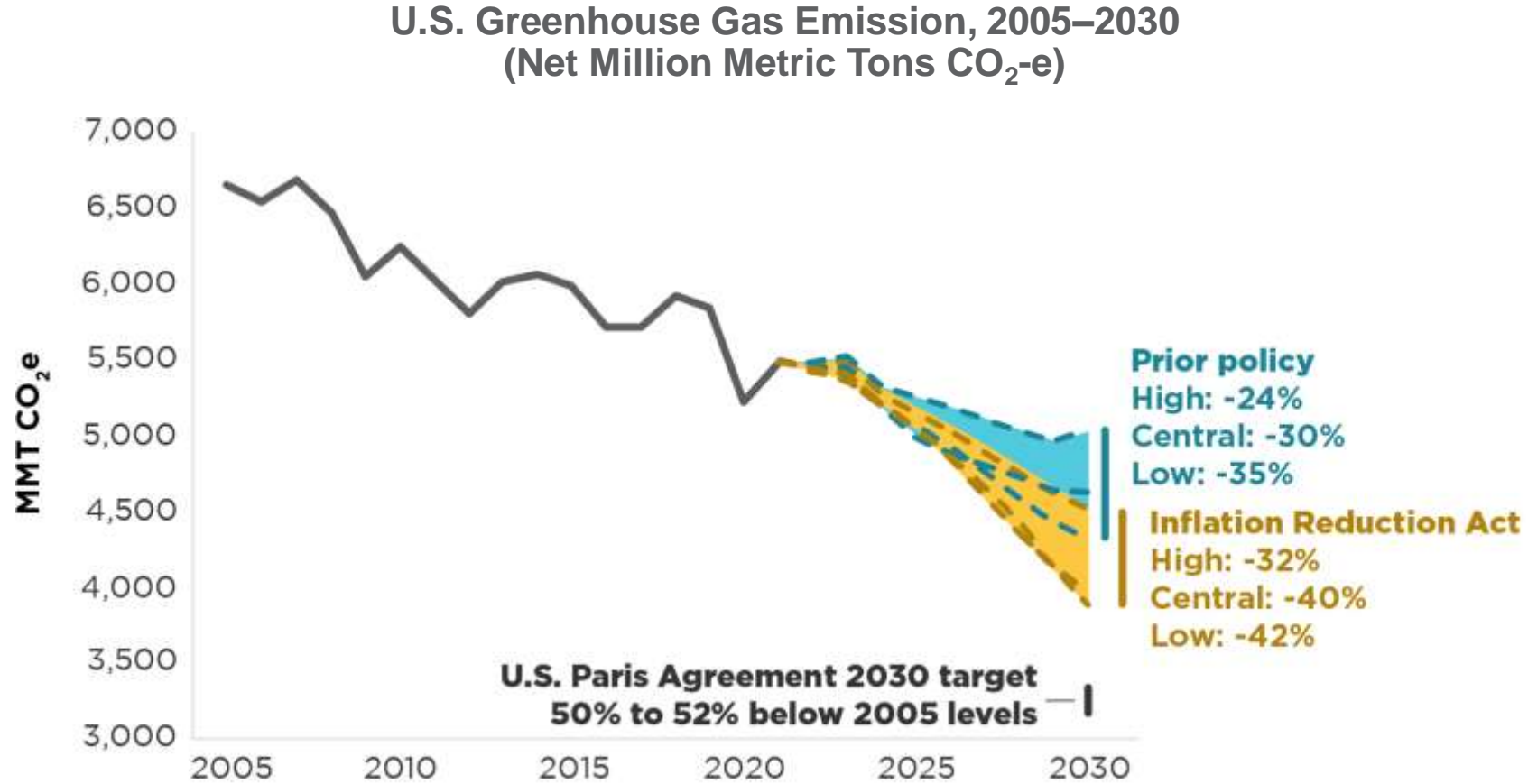
**Direct approach to shape
domestic industrial policy**

Spending: No Historical Comparison

Federal Climate-Related Spending, 1990–2027
(Inflation Adjusted)

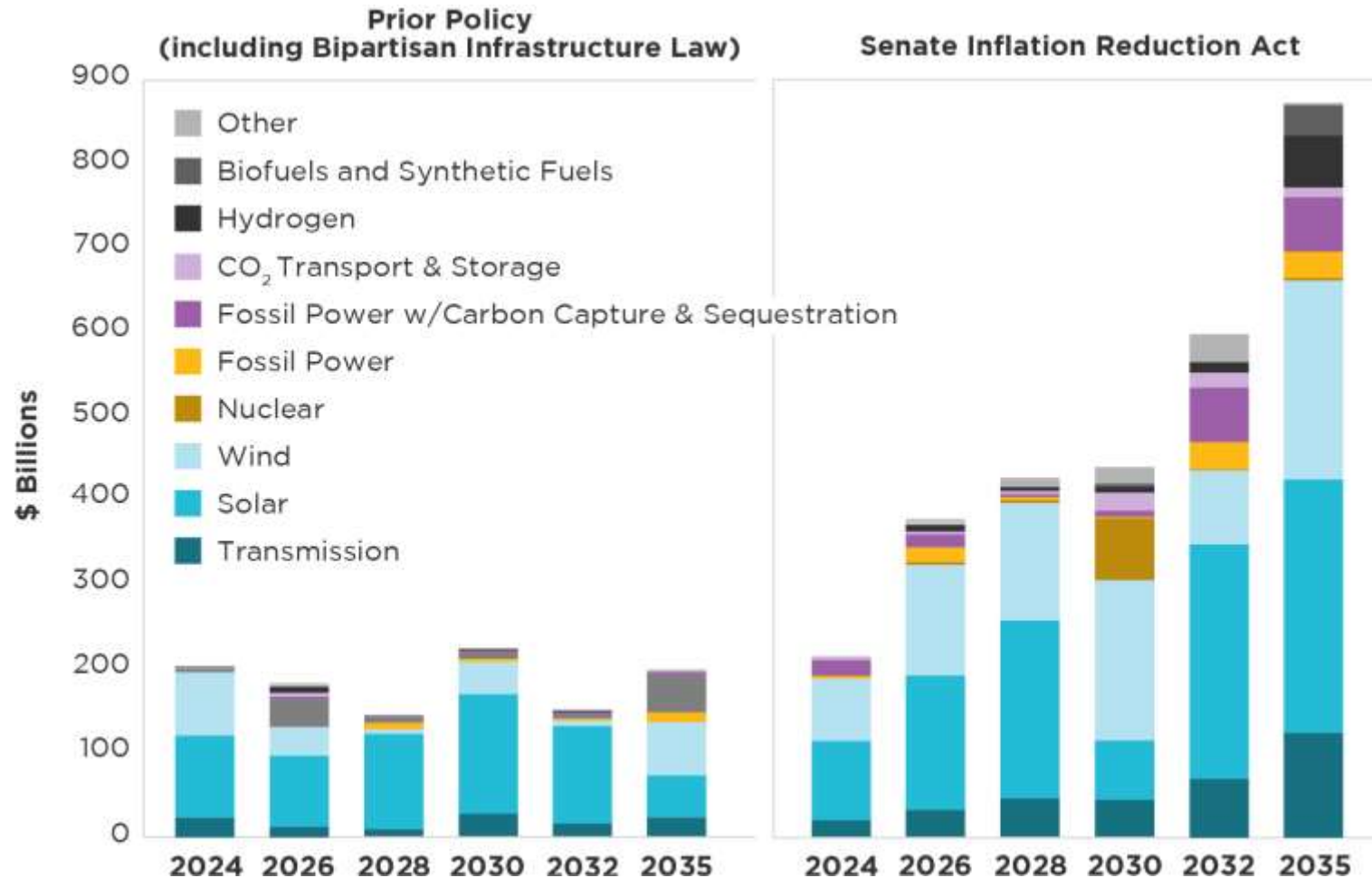


GHG Emissions: Charting a New Course



Capital Investment: “Gold Rush” for Solar, Wind, and Others

Annual Capital Investment in Energy Supply-Related Infrastructure
(Billion 2022 USD per Year)



Key Takeaways

Accelerating the Energy Transition Will Not Be Simple

Everything Has Changed

- Reassess existing strategies and business plans—assumptions are probably outdated.
- Identify and prioritize IRA opportunities that may have the greatest impact.

Increased Complexity

- Begin to prepare and organize for increased complexity (e.g., bonus credits, stacking, etc.).
- Additional assumptions or refinements may be needed in project finance and IRP models.

IRA Implementation and Permitting Reform

- Federal agencies will move quickly to implement IRA provisions. In addition, the EPA is likely to develop new power sector regulations.
- Permitting reform could remove a perennial challenge facing electric and natural gas infrastructure development.

ScottMadden's EIU: Money, Money, Money

The screenshot displays the ScottMadden Energy Industry Update report. The main title is "ENERGY INDUSTRY UPDATE MONEY, MONEY, MONEY". A navigation bar at the top includes links for "Homepage", "Table of Contents", "Executive Summary", "Energy Cost and Affordability", and "Distributed Resources and I". A search bar and social media icons are also present.

The report content includes a bar chart showing projected capital expenditures from 2022 to 2024, categorized by Transmission and Distribution. The y-axis represents billions of dollars, ranging from \$0 to \$80,000. The x-axis shows the years 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, and 2032.

Sources: Edison Electric Institute; S&P Global Market Intelligence; ScottMadden analysis

Figure 2.2: Projected Capital Expenditures of Selected Electric, Gas, and Multi-Utilities by Business Category (2022-2024)

The pie chart shows the following distribution of expenditures by business category:

Business Category	Percentage
Electric Generation	34%
Electric Transmission	24%
Gas	17%
Environmental	10%
Water	6%
Powerplants	6%
Other	6%

Sources: S&P Global Capital IQ Pro/Regulatory Research Associates

Visit the link below for the latest Energy Industry Update, in a new interactive format!

scottmadden.com/energy-industry-update/

YOUR WEBINAR PRESENTERS



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Partner and
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Talha Sheikh

Director



Josh Kmiec

Director



Paul Quinlan

Energy and
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