Energy Market Transformation

Navigating the Perfect Storm of AI, Policy, and Natural Gas

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Agenda

Strategic Overview

- **Market Transformation Overview** - The energy trifecta challenge
- **Natural Gas & Supply Chain Crisis** - Market boom meets infrastructure constraints
- **Industrial Demand & Policy Disruption** - AI-driven growth and regulatory impacts
- **Risk Management Evolution** - From traditional to integrated approaches
- **Strategic Recommendations** - Immediate, medium, and long-term actions

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Executive Summary
The Energy Trifecta Challenge

- **Natural Gas Market Explosion:** From $46.41B (2024) to $64.12B (2030) driven by data center demand
- **Supply Chain Crisis:** Gas turbine lead times extended from 18-24 months to 5-7 years
- **Policy Disruption:** Renewable credit timeline compression creates 5-year acceleration pressure

Bottom Line: Organizations need integrated cross-commodity risk management now to navigate 49% natural gas price increases by 2030

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Natural Gas Generation Boom
Market Scale Transformation

$64.12B
Projected Market Value by 2030

5.4%
Annual Growth Rate (CAGR)

2.0 Bcf/day
Data Center Gas Demand by 2030

- **AI Infrastructure Driving Demand:** Data centers consuming 1.2 Bcf/day today, projected to reach 2.0 Bcf/day by 2030
- **Henry Hub Price Surge:** Current $3.61/MMBtu projected to reach $5.40/MMBtu by 2030 (49% increase)

Source: Grand View Research, SCP Global, EIA, Siemens PTI

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Industrial Sector Adoption

Beyond Data Centers

Manufacturing Renaissance: Chemical, steel, and aluminum industries expanding domestic capacity

Grid Reliability Premium: Industries paying premium for dedicated natural gas generation capacity

Electrification Wave: Transportation and heating electrification driving additional baseload demand

Regional Concentration: Texas, Louisiana, and Pennsylvania leading industrial gas consumption growth

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Gas Turbine Supply Chain Crisis

Infrastructure Bottleneck Reality

Lead Times: 18-24 months → 5-7 years

- **Manufacturing Capacity Constraints:** Global turbine manufacturers unable to scale production fast enough
- **Critical Components Shortage:** Specialized alloys and precision components creating bottlenecks
- **Skilled Labor Gap:** Shortage of qualified technicians for turbine assembly and installation
- **Strategic Implication:** Organizations ordering today for 2029-2030 delivery windows

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Industrial Electricity Demand Explosion

First Growth Since 2010

25%
US Power Demand Growth by 2030

580 TWh
Projected Data Center Consumption (2030)

12%
Share of Total US Electricity

- **AI & Cloud Computing:** Data centers growing from 176 TWh (2023) to 580 TWh (2030)
- **Manufacturing Reshoring:** Semiconductor and battery production driving industrial load growth

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Policy Disruption Overview

The "One Big Beautiful Bill" Act Impact

- **Renewable Credits Expire:** December 31, 2027 - accelerating project timelines
- **Construction Deadline Pressure:** July 5, 2026 requirement compressing 5-year development cycles
- **RPS Compliance Challenges:** Shrinking renewable pipeline while mandates remain unchanged
- **Carbon Management Requirements:** New reporting and offset obligations for large energy users

Timeline Compression: 5-year acceleration in renewable development cycles

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Risk Management Evolution

Traditional vs. Integrated Approaches

1

Traditional Approach: Separate electricity, natural gas, and carbon risk management

2

New Reality: Cross-commodity correlation requires integrated hedging strategies

3

Technology Integration: Real-time monitoring across all energy commodities

4

Portfolio Approach: Balancing renewable, natural gas, and demand response resources

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Natural Gas Hedging Strategies
Layered Approach for Price Volatility

- **Multi-Year Hedging:** 1-3 year forward contracts to manage price doubling risk
- **Cross-Commodity Correlation:** Natural gas positions hedging against electricity price spikes
- **Basis Risk Management:** Location-specific pricing differentials require regional hedging
- **Volume Flexibility:** Collar structures providing upside participation with downside protection

Key Metric: $5.40/MMBtu by 2030 - Plan hedging strategies now

Strategic Recommendations

Immediate Actions (0-6 Months)

- **Supply Chain Risk Assessment:** Evaluate gas turbine lead times and secure delivery slots for critical capacity
- **Cross-Commodity Risk Modeling:** Implement integrated electricity-gas-carbon risk management systems
- **Load Profile Optimization:** Analyze demand response opportunities and monetization potential
- **Policy Timeline Mapping:** Create detailed compliance calendar for renewable credit expirations

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Medium-Term Initiatives

6-18 Month Implementation

- **Technology Portfolio Development:** Build hybrid renewable-gas-storage strategies for baseload reliability
- **Market Intelligence Infrastructure:** Deploy real-time cross-commodity price monitoring and forecasting
- **Strategic Partnerships:** Develop joint ventures for shared infrastructure costs and risk mitigation
- **Regulatory Engagement:** Active participation in policy development for post-2027 renewable frameworks

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Long-Term Positioning

18+ Month Strategic Investments

- **Energy Infrastructure Investments:** Campus microgrids and behind-the-meter generation capabilities

- **Sustainability Transition Planning:** Carbon management integration with energy procurement strategies

- **Hydrogen Readiness:** Future-proof natural gas infrastructure for hydrogen fuel flexibility

- **Regional Energy Security:** Diversify supply chains and develop regional energy partnerships

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Key Decision Points

Resource Allocation & Strategic Positioning

Capacity Investment Timing: Order gas turbines now for 2029-2030 delivery or accept market risk

Hedging Strategy Depth: Multi-year natural gas hedging to manage 49% price increase projections

Technology Mix Optimization: Balance renewable mandates with reliability requirements

Partnership vs. Self-Development: Strategic alliances vs. independent capacity development

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Discussion Questions
Strategic Planning Considerations

Given 5-7 year gas turbine lead times, what flexibility do you need in capacity expansion plans?

How should natural gas hedging strategy change with projected price doubling by 2030?

What level of commodity price volatility can your operations absorb without material impact?

Should your organization invest in behind-the-meter generation for operational resilience?

How do you balance RPS compliance requirements with shrinking renewable project pipeline?

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Key Statistics Summary

Supporting Data Overview

$64.12B	Natural Gas Market by 2030
5-7 Years	Gas Turbine Lead Times
25%	US Power Demand Growth
40%	Natural Gas Price Increase
580 TWh	Data Center Consumption (2030)
Dec 2027	Renewable Credits Expire

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Follow-up & Strategic Planning Support

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