MAY 15 2025 | DENVER
RESILIENCE SUMMIT

CLIMATE RISK MANAGEMENT

Evolving Approaches to Reducing Asset and Portfolio Climate Risk

OUR SPEAKERS

Katie Wholey

Director,

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Member Relations Manager

GRESB

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JBG SMITH

John Thigpen

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JLL

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Global Infrastructure Partners, a part of BlackRock

Ross Beardsley

Senior Managing Consultant

Ramboll

RESILIENCE QUESTIONS

RM5 : Does the Entity's Climate Strategy Incorporate Resilience?

RM6.1 - RM 6.4 : Does the Entity include Transition and Physical Risk Identification and perform Impact Assessments for these risks?

RA1 (RE) /RM6.5(infra) – Asset Level Risk Assessments

(option: Climate Adaptation)

EVOLUTION OF RESILIENCE Q'S IN GRESB

2026 Standards - 4.5 points
2025 Standards - 2.5 points
2024 Standards - 2.5 points
2023 Standards - 2 points
2022 Standards - Not Scored

AVERAGE SCORES IN RESILIENCE Q'S

2024 - 89% in Americas (Global is 93%)

2023 - 86% in Americas (Global is 90%)

2022 - 54% In Americas (Global is 52%)

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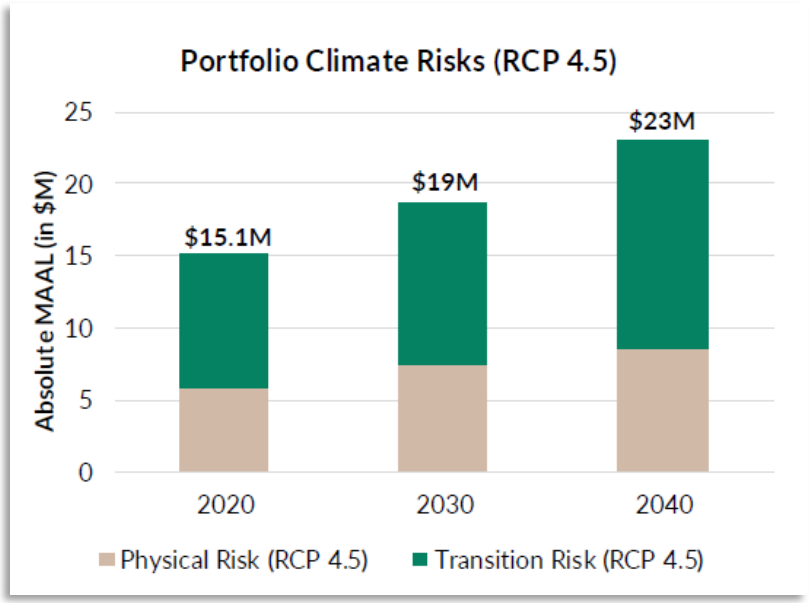
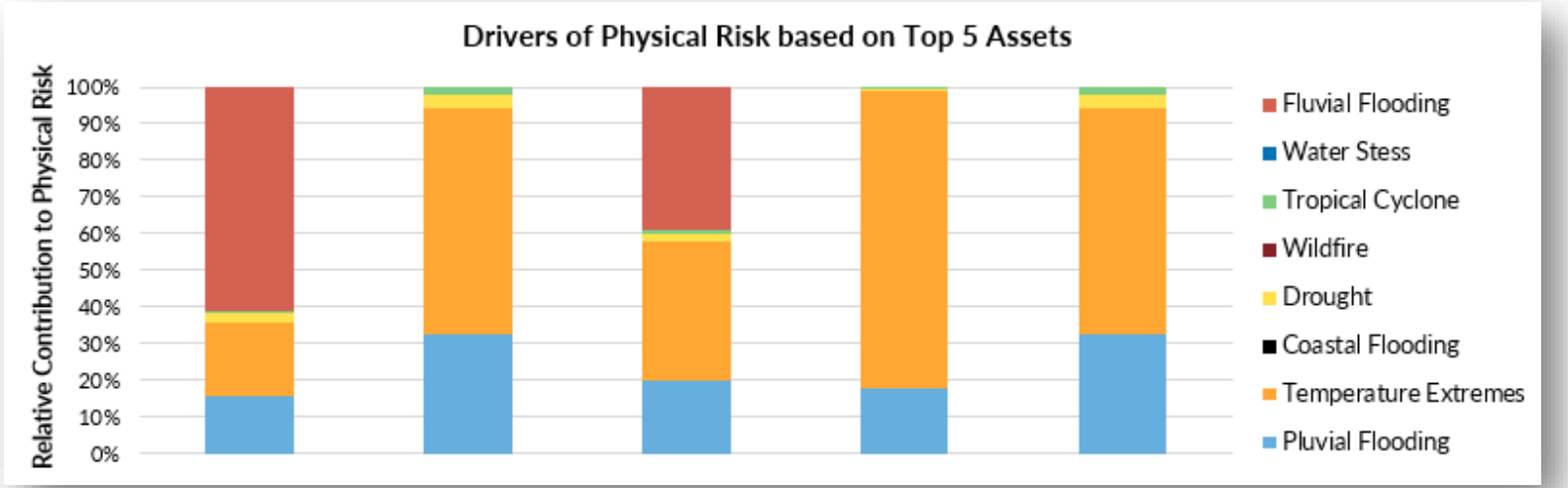
ASSESSMENT TO ACTION

Strategic value of climate related risk assessment outcomes

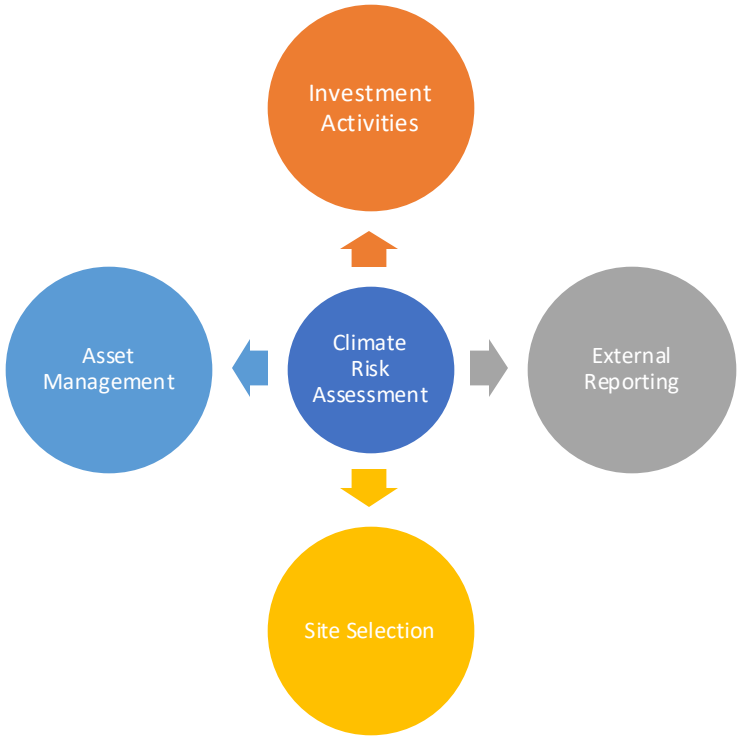
KEY FINDINGS OF JBGS' CLIMATE RISK ASSESSMENT



- Transition risks more determinative relative to financial risk exposure
- Physical climate risk exposure levels don’t begin increasing substantially until after 2050
- Chronic physical climate hazards often represent majority of total physical climate risk exposure

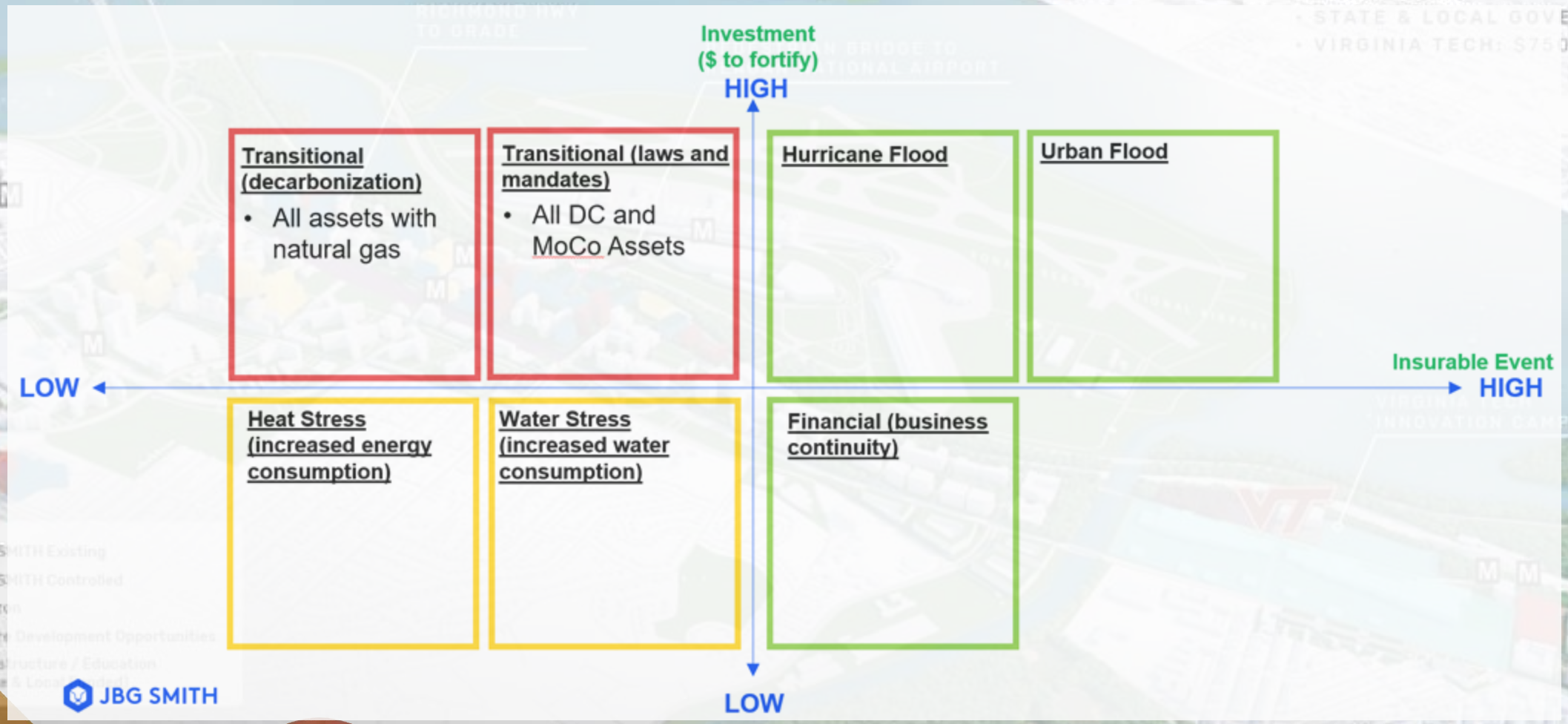


LEVERAGING CLIMATE RISK ASSESSMENT OUTCOMES



- Risk assessment tools designed to facilitate external reporting (TCFD, etc)
- Those tools can also inform
  - Investment Activities
  - Asset Management
  - Site Selection

APPLYING CLIMATE RISK ASSESSMENTS TO INVESTMENT PLANNING



CLIMATE RISK ASSESSMENTS TO RESILIENCE MITIGATION MEASURES

Physical risk mitigation measures have been identified below based on the major hazards for this asset group:

Category	Measure Name	Cost	Return	Implementa	Major Climate Hazards Addresse	Level of Impact Reducing Risk	Potential to Also Red Transitio Risk	Potential for Reduced Insuranc Premiums	Adde Amenity	Reduced Operatio Cost/Impact	Extended Building Equipme Life
Exterior Features	Convert lawns to multi-story landscapes (e.g., shrubs and trees) to better manage temperature buildup and improve water management	Low	Low	Easy	Temperature Extremes, Pluvial (Urban) Flooding	Low			X	X	X
Exterior Features	Enhance tree wells (e.g. using structural soils) to reduce physical impact of drought, ice upheaval, and excessive water	Low	Low	Easy	Temperature Extremes, Pluvial (Urban) Flooding	Low				X	X
Exterior Features	Implement drought-tolerant landscaping to withstand periods of limited precipitation	Low	Low	Easy	Temperature Extremes, Pluvial (Urban) Flooding	Low			X		X
Building Envelope	Install cool roof surface by applying a reflective coating to mitigate risks assocated with heat transfer	Low	Moderate	Easy	Temperature Extremes	Low	X	X		X	X
Design	Limit future development in high-risk areas	Low	High	Moderate	Pluvial (Urban) Flooding, Fluvial	High	X	X		X	
Exterior Features	Utilize native landscaping and species selection for future climates to maintain biodiversity and increase resistance to environmental changes	Low	Low	Easy	Pluvial (Urban) Flooding, Fluvial	Low					X
Exterior Features	Anchor or engineer attached structures (e.g., porches, decks, cantilevered overhangs) for stability against flooding forces	Moderate	Low	Moderate	Pluvial (Urban) Flooding, Fluvial (River) Flooding	Moderate		X	X	X	
Design	Build or retrofit to resilient building programs, such as FORTIFIED, REDi, or Wildfire Prepared Home	Moderate	Moderate	Moderate	Pluvial (Urban) Flooding, Fluvial	Moderate	X	X		X	
Design	Design HVAC and electrical systems for extreme heat and cold (e.g., heat tolerance and added future capacity)	Moderate	Moderate	Moderate	Temperature Extremes	Moderate	X			X	
Operations and Maintenance	Direct roof runoff externally as a water management measure limiting pooling	Moderate	Low	Easy	Pluvial (Urban) Flooding	Moderate				X	
Operations and Maintenance	Enhance filtration and ventilation to mitigate impacts on occupant health based on outdoor air quality	Moderate	Low	Moderate	Temperature Extremes	Moderate	X	X			

Cost/benefit

Climate hazards addressed

Co-benefits

DECISION MAKING FLOW FOR RISK MITIGATION STRATEGIES

Mitigation strategy

CapEx

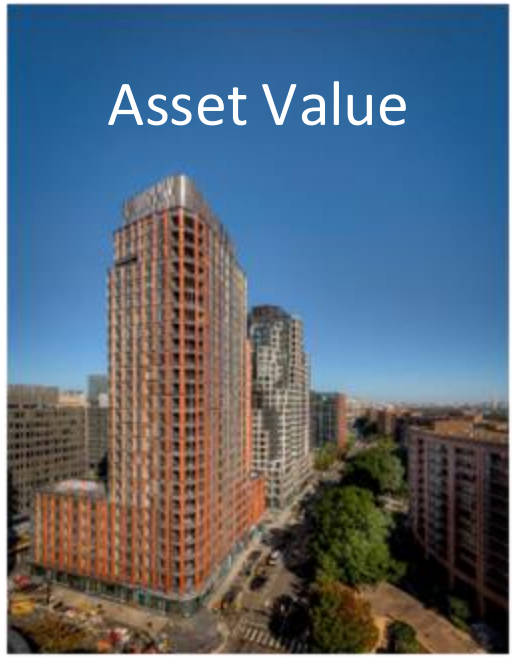
OpEx

ROI

EEP

Pay back

Tenant Experience



STRATEGIC RESILIENCE

A Systematic Approach to Climate Risk Management in Large and Complex Asset Portfolios

THE CHALLENGE

- Diverse and complex assets spanning multiple geographies and sectors
- Varying climate sensitivities across asset types
- Facility-level assessment is resource-intensive
- Difficult to translate detailed hazard data into actionable portfolio insights

OUR OBJECTIVE

Develop an efficient, top-down framework that identifies potentially material climate risks and prioritizes assets for resilience planning based on:

Financial & Operational Criticality

- Revenue, EBITDA, profit contribution
- Business continuity role

Geographic Concentration

- Potential for shared fate or impact from a single climate event

Potential Risk

- Facility-level exposure
- Hazard sensitivity by asset type

Risk & Resilience Maturity

- Governance & awareness
- Actions & performance
- Resilience

CRITICALITY & CONCENTRATION

Identify assets with potential to result in material impacts considering financial metrics, business continuity, and geographic concentration

Telecommunications Company

1000's of towers

Well Distributed Across Service Areas

No individually material assets or regions; focus on enterprise-level resilience

Renewable Energy Company

40 facilities, Several >10% total capacity

>35% of capacity in one state

Prioritize assets > 10% capacity and state with concentrated asset value

Chemicals Manufacturer

Single facility, highly concentrated risk

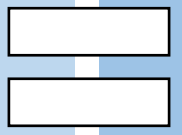
Very high priority due to concentration of risk, lack of redundancy

POTENTIAL RISK

Determine potential risk of all assets by combing facility-level hazard exposure with climate sensitivity of the asset type; weight by financial/operational value

Hazard Exposure
Intensity, frequency, and duration of hazards at asset location

Hazard Sensitivity
Degree to which a system is affected by the climate hazard



Potential Risk
Level of potential risk based on exposure and sensitivity, not facility-level resilience measures

Exposure Rating	Sensitivity Rating			
	Minimal (0)	Low (1)	Medium (2)	High (3)
Minimal (0)	0	0	0	0
Low (1)	0	1	2	3
Medium (2)	0	2	4	6
High (3)	0	3	6	9
Very High (4)	0	4	8	12

Asset	Water Stress & Drought		
	Exposure	Sensitivity	Potential Risk
Texas Solar Farm	High	Minimal	Minimal
NorCal Gas Plant	Low	High	Medium

RISK & RESILIENCE MATURITY

Implement standardized questionnaire to evaluate the maturity of companies and assets with respect to climate risk and resilience

Climate Risk Unaware

- Limited to no consideration of climate risks in governance, strategy, and operations
- No climate risk assessment or targets
- Minimal integration of climate considerations into business processes

Climate Risk Aware

- Some consideration of climate risks, but not comprehensive and largely driven by regulatory compliance
- Basic climate risk assessment and limited tracking of climate-related impacts and investments
- Partial integration of climate considerations into business processes
- Some adaptation measures in place

Climate Resilience Leader

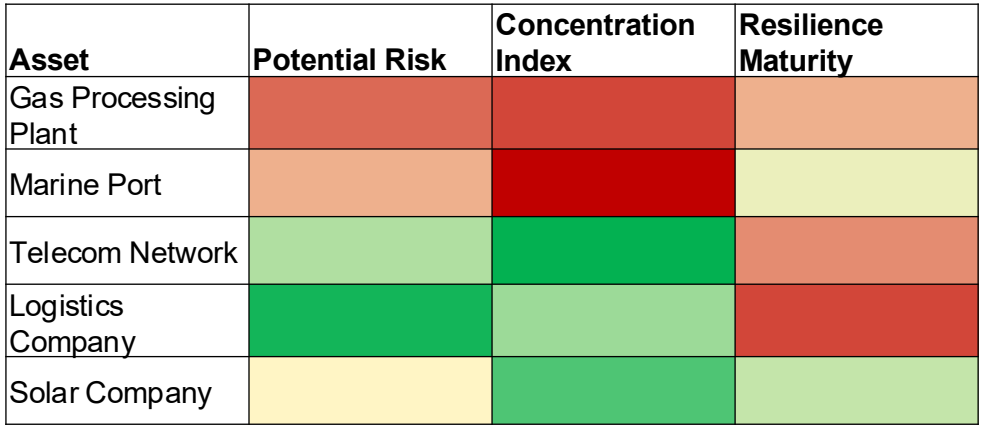
- Comprehensive consideration of climate risks in governance, strategy, and operations
- Robust climate risk assessment and scenario analysis
- Full integration of climate considerations into business processes
- Comprehensive adaptation measures and resilience strategies in place

IMPLEMENTING THE FRAMEWORK

Leverage relative ratings across metrics to prioritize resources for high-risk companies and assets

Key Considerations

- **Available strategies across the risk mitigation hierarchy** - operational controls, infrastructure hardening, risk transfers (insurance), and redundancy planning
- **Level of operational control and ability to implement measures** - Different ownership structures impact feasibility of resilience investments
- **Integration with investment lifecycle timing** - New acquisitions, divestment timelines, and hold period influence when to prioritize resilience investments
- **Available capacity and resources** - Balance resilience investments with other capital allocation priorities



Asset	Potential Risk	Concentration Index	Resilience Maturity
Gas Processing Plant			
Marine Port			
Telecom Network			
Logistics Company			
Solar Company			

CUSTOMIZING APPROACH BY MATURITY

Framework implementation varies by company sophistication: building awareness vs. enhancing established practices

Climate Risk Unaware

- Educate on fundamental climate risks relevant to their assets
- Simplify assessment process and guide through basic data collection
- Focus on building capacity before advancing to vulnerability assessments
- Prioritize easy wins to demonstrate value of climate resilience

Climate Resilience Leader

- Leverage existing data and structures for deeper vulnerability analysis
- Focus on prioritization of most at-risk and critical assets for strategic capital allocation
- Identify gaps in current approach and opportunities for optimization
- Integrate framework outputs into existing risk management systems and other management processes

PRACTICAL INSIGHTS & LESSONS LEARNED

- **Asset-level insights are valuable without full climate modeling** - Criticality and concentration analysis alone provides significant insights before adding hazard data
- **Prioritization drives efficiency and ROI** - Focusing on top value chain impacts by risk drives majority of impact; comprehensive assessment isn't always necessary
- **Maturity assessment shapes engagement approach** - Understanding a company's climate readiness is essential; similar risk profiles require very different approaches based on maturity
- **Integration is key to sustained resilience** - Embedding climate considerations into existing risk management systems ensures long-term adoption beyond one-time assessments
- **Value creation requires balanced storytelling** - Communicating both risk mitigation and commercial benefits (continuity, asset protection, competitive positioning) drives stronger buy-in
- **Climate resilience is both risk management and value creation** - Beyond protecting downside, resilience investments can improve operational efficiency, extend asset life, and enhance exit valuations

Q&A

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