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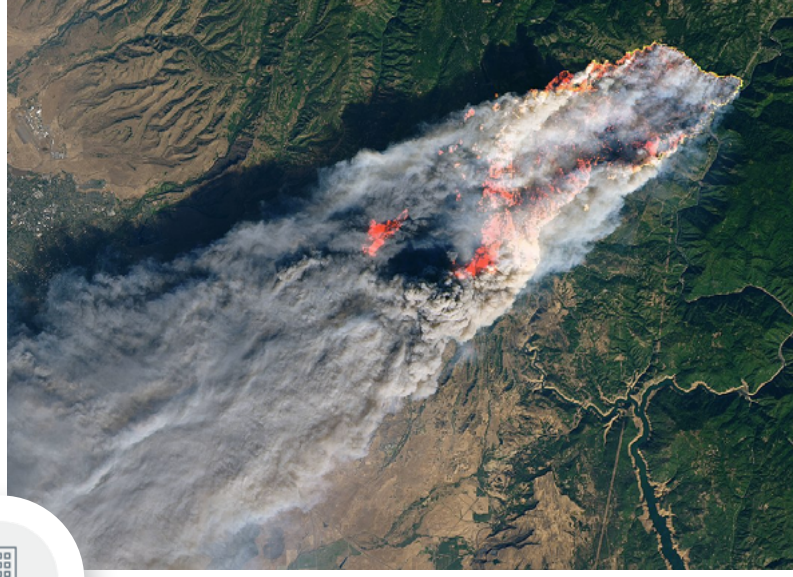

Resilient Real Assets

Update from the 2019 GRESB Resilience Module

PARTNERS:

ARUP | BOMA Canada | bre | CCRI Coalition for Climate Resilient Investment | CRREM

green building council australia | ISCA | REALPAC Real property Real leadership | ULI Urban Land Institute | U.S. Green Building Council USGBC

GRESB recognizes the significant contributions of these organizations to this document, the GRESB Climate Risk & Resilience Industry Working Group, and earlier versions of the Resilience Module.

FOREWORD

Real estate and Infrastructure investors own long-term, illiquid, and immovable assets. This exposes them to socio-economic and environmental trends, such as population growth, urbanization, climate change, and technological disruption. Real asset investors need to understand these issues and develop business strategies to manage risks and create opportunities.

This report summarizes findings from the 2019 GRESB Resilience Module. This assessment provides a unique snapshot of activities by real asset firms around the world, providing insight about their governance, risk management, business strategy, and performance measurement. The Module aligns with the recommendations of the Financial Stability Board's Task Force on Climate-related Financial Disclosures (TCFD). This includes critical issues related to transition and physical risks. The Module also includes information related to climate-related social risks, such as the Yellow Vest movement in Paris or storm-driven population loss in New Orleans.

As these issues evolve, it is clear that new responsibilities are emerging, not only for investors, but also for the companies and funds in which they invest. The data in this report clearly show significant variation between firms. Comprehensive management cannot be assumed, and investors have a fiduciary responsibility to ask good questions about climate-related risk and resilience. Real asset companies and funds have a responsibility to understand risks and effectively communicate management actions to internal and external stakeholders.

The 2020 Resilience Module has been revised again to reflect lessons learned in 2019. The new Module provides more emphasis on the identification, assessment, and management of material risks and greater detail about the use of forward-looking scenarios. Questions for transition, physical, and social risk have been refined to better reflect distinctions between these categories.

Experience with the 2020 Module will lead directly to the incorporation of the most valuable indicators and answer options into the core GRESB 2021 Real Estate and Infrastructure Assessments. This will move climate risk and resilience disclosures from an optional element to a mandatory and integral part of the assessments. Experience with these indicators will translate into better reporting and benchmarking through core GRESB assessments and, in turn, greater availability of material, climate-related information for institutional investors. Companies and funds can best prepare for this change by participating in the 2020 Module and engaging with GRESB's ongoing Industry Working Group.

We are looking forward to continuing this important work in 2020.

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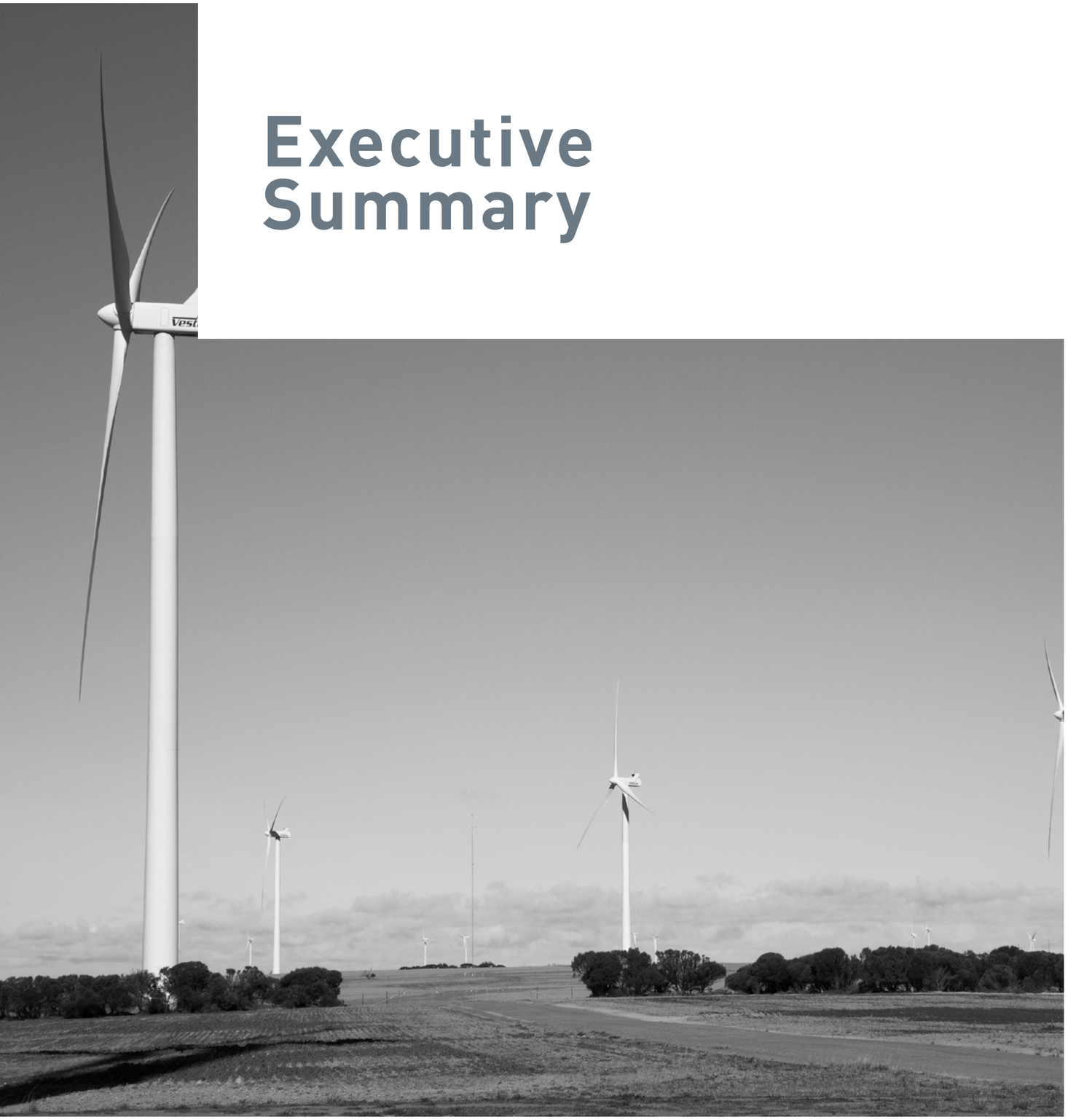
Table of Contents

EXECUTIVE SUMMARY

Executive Summary



Climate risk and resilience have emerged as material issues for real asset investors. New recommendations and sustained attention from industry leaders have helped investors and operating companies understand risks and recognize the need for new kinds of disclosure. In 2018, GRESB responded to these global trends with the introduction of the Resilience Module, a supplement to the GRESB Real Estate and GRESB Infrastructure Assessments. In 2019, participation in the Module increased to 316 companies and funds, a 96% increase from 2018. The 2019 Module was revised to increase alignment with the Financial Stability Board's Task Force on Climate-related Financial Disclosures (TCFD). This included new indicators and answer options related to governance, strategy, risk management, and metrics and targets.

The 2019 Module clearly delineated responses regarding climate-related transition, physical, and social risks. Transition risk refers to the business consequences of the shift to a low-carbon economy. Some decarbonization policy pathways have the potential to create stranded assets, increased obligations for retrofit, or changes in competitive positioning. Physical risk refers to the potential impact of events such as storms, wildfires, floods, and other climate-related hazards, as well as longer-term stresses from changing climatic patterns. These shocks and stresses create the potential for anticipated damage or loss. Social risks refer here to the risks of social disruptions that are either directly or indirectly associated with transition and/or physical risk factors. These could include population dislocations, economic disruptions, or social movements. These can undermine an organization's social license to operate, the cost and availability of labor, and the willingness or ability to purchase goods and services.

Participants reported having systematic risk management processes for all three issues with 92% reporting on physical risk management, 84% reporting on transition risk management, and 72% reporting on social risk management. Practices within these broad categories varied widely, and only a small minority of companies reported comprehensive programs. As evidenced by results for transition risk indicators, participating companies demonstrated a strong bias toward risk assessment and away from target setting and disclosure. For example, 92% of respondents reported assessing climate risk, while only 21% had established science-based targets, and only 42% made related disclosures to investors.

These findings suggest a dynamic, heterogeneous industry. A larger number of firms are paying attention to climate risk and resilience, and more investors are asking timely and relevant questions. Yet, the practices are still fragmented and data from the Module indicate a "long tail" with respect to the development of comprehensive programs. The 2019 data show that a relatively small, but significant, fraction (20%) of leading companies and funds have implemented comprehensive programs covering governance, risk management, business strategy, and targets and metrics. This shows that it is possible to put in place the scaffolding for effective management. Yet, the majority of the market that responded to the Module (80%) have piece-meal programs missing key elements recommended by the TCFD. These firms do not yet report the elements widely regarded as necessary to effectively manage climate-related risks. Such a wide-range of management comprehensiveness is supported by ShareAction's recent Point of No Returns report (2020).

The report contains many insights about the state of the industry and practices among leading companies and funds. Overall, real estate companies appear to have more mature and comprehensive programs than do infrastructure companies. The management of transition risk has received more consideration than that of either physical or social risk. Only a fraction of companies report using scenario analysis to identify risks and opportunities. Generously, one could conclude that most companies are building the foundation for action, but they have not yet established clear goals or a coordinated system of climate risk management.

RECOMMENDATIONS

Recommendations

REAL ASSETS INVESTORS

Results from the 2019 GRESB Resilience Module support several practical recommendations for real asset investors:

1. **Do not assume**. Investors should not assume that all companies are effectively managing climate risk and promoting resilience. The scope and the effectiveness of climate risk management and resilience building varies widely among real asset companies and funds.

2. **Ask for more information**. The majority of participating companies and funds collect more climate risk and resilience information than they share with their investors. Investors may be able to get more information simply by asking the right questions.

3. **Recognize leaders**. A fraction of real asset companies and funds report having comprehensive programs to manage climate risk and promote resilience. This includes having well-defined climate governance, relevant risk assessment processes, coordinated business strategies, and aligned targets and operational measurement. Companies with all of these attributes remain the exception and should be recognized as market leaders.

Overall, investors can and should explicitly include climate risk and resilience in their responsible investment processes and engagement with their investments. Moving forward, investors will be challenged to determine not only the presence of management practices, but their quality and effectiveness as well.

RECOMMENDATIONS

REAL ASSETS COMPANIES AND FUNDS

Results from the GRESB Assessment and Resilience Module also provide insights for real asset companies and funds:

1. **Start with leadership and governance**. Almost every participating entity reports having an internal person responsible for climate risk and resilience. The next step is to ensure that this individual is qualified, empowered, and connected to leadership. The TCFD and others describe the presence of an accountable leader with clear connections to the firm's most senior decision makers as an essential element of "climate governance".

2. **Generate situational awareness**. Most companies and funds report conducting climate- and/or resilience-related risk assessments. Physical risk assessments are the most common, followed by those addressing transition risk. Social risk assessments are least common. The best companies regularly assess material risks across a range of scales relevant to business operations (e.g., facilities, service territories, supply chains, etc.).

3. **Align business strategies**. Most companies and funds report implementing business strategies to address climate risk and promote resilience. However, the nature of these strategies varies widely. The best companies will align and prioritize business strategies with the results from risk assessments.

4. **Set relevant targets and metrics**. Leadership, risk assessment, and even business strategy on climate risk and resilience are relatively common. However, clear performance targets, operational metrics, and real world performance measurement remain rare. The presence of targets, metrics, and on-going measurement distinguish the best companies and funds.

The 2019 Resilience Module provides a snapshot of the way real asset companies and funds are managing climate risk and resilience. Some firms have developed and executed relatively comprehensive programs. For these organizations, the next step is to focus on quality, consistency, and operational outcomes. However, the majority of firms have partial or fragmented programs, often missing key elements, such as performance targets or operational metrics. These firms should focus on creating and maintaining the management infrastructure needed to address transition, physical, and social risk.

INTRODUCTION

Introduction

Real asset owners and managers face a growing demand from investors to understand and manage climate risk and resilience. As long-term, often illiquid investments, real assets are particularly exposed to climate-related transition, physical, and social risks. They cannot be moved, and they are tightly interconnected with potentially vulnerable energy systems, infrastructure, and social conditions. This vulnerability creates the need for situational awareness and effective management.

This report addresses resilience with regard to three aspects of climate-related risk, including transition, physical, and social issues. Transition risks are associated with speed, extent, and nature of the shift of a low-carbon economy. This shift may create new expectations and regulatory requirements in ways that create advantages for some firms and assets, and disadvantages for others. Physical risks are relatively easy to understand. They include threats from higher temperatures, rising sea levels, changes in storm frequency, and more. Social risks are often intertwined with transition and physical risk factors. The low-carbon transition will impact the allocation of jobs and wages. Physical impacts are likely to be disproportionately felt by low-income and historically disadvantaged groups.

> *Global temperatures in 2018 were 1.5 degrees Fahrenheit (0.83 degrees Celsius) warmer than the 1951 to 1980 mean, according to scientists at NASA's Goddard Institute for Space Studies (GISS) in New York. Globally, 2018's temperatures rank behind those of 2016, 2017 and 2015. The past five years are, collectively, the warmest years in the modern record.*
>
> NASA (2019)
> Global Vital Signs of the Planet

High-profile policy proposals, environmental events, and social shocks have helped raise awareness among institutional investors of the increasing importance of understanding the exposure of their investments. Decarbonization policies have been enacted around the world, including mandates for emissions disclosure and reduction in property and infrastructure. New record-high temperatures were felt in Asia (43°C; 109°F) and Africa (51°C; 124°F) during 2019. In 2018, Southern California was hit by a summer heatwave with temperatures above 43°C (110°F) leading to extreme energy demand and power outages. These temperatures also exacerbated wildfires, which swept across Northern and Central California, killing more than 85 people. These experiences were mirrored around the world, including significant events in northern England, Sweden, and critically, Australia. India faced mass migration due to severe drought, followed by extreme rainfall and flooding[1].

[1] Levin, K. and D. Tirpak (2018) A Year of Climate Extreme. World Resources Institute, URL: https://www.wri.org/blog/2018/12/2018-year-climate-extremes

New tools have given companies guidance on how to assess and communicate the associated risks. Most notably, in 2017, the Financial Stability Board's Task Force on Climate-related Financial Disclosures (TCFD) provided recommendations for disclosing climate-related risks and opportunities. This included an emphasis on disclosure of information about climate governance, strategy, risk management, metrics, and targets. In 2019, the TCFD released its second update on progress toward the implementation of their seminal recommendations. According to its 2019 status report, nearly 800 organizations have expressed their support for the TCFD recommendations, including global financial companies with assets under management in excess of $118 trillion USD[2].

> *The relevance of climate-related risks to today's financial decisions and the need for greater transparency have only become clearer and more urgent over the past two years. Nearly 800 public- and private-sector organizations have announced their support for the TCFD and its work, including global financial firms responsible for assets in excess of $118 trillion.*
>
> Michael Bloomberg (2019)
> Task Force on Climate-related Financial Disclosures: Status Report

These events and tools, combined with on-going action by industry leaders, reaffirmed GRESB's decision to continue to offer the Resilience Module as a supplement to its Real Estate and Infrastructure Assessments. The 2019 Resilience Module was broadly aligned with TCFD recommendations.

[2] TCFD (2019) Task Force on Climate-related Financial Disclosures: 2019 Status Report,
URL: https://www.fsb-tcfd.org/wp-content/uploads/2019/06/2019-TCFD-Status-Report-FINAL-053119.pdf

RESILIENCE MODULE OVERVIEW

2019 Resilience Module Overview

The GRESB Resilience Module (the Module) is an optional supplement to the core GRESB assessments. The Module provides a flexible tool to develop and test new indicators over a three-year period. In 2019, the Module was made available for all GRESB assessments, including real estate, infrastructure assets, infrastructure funds, and developers. Designed to align with the four core recommendations of the TCFD, the 2019 Module consisted of four sections:

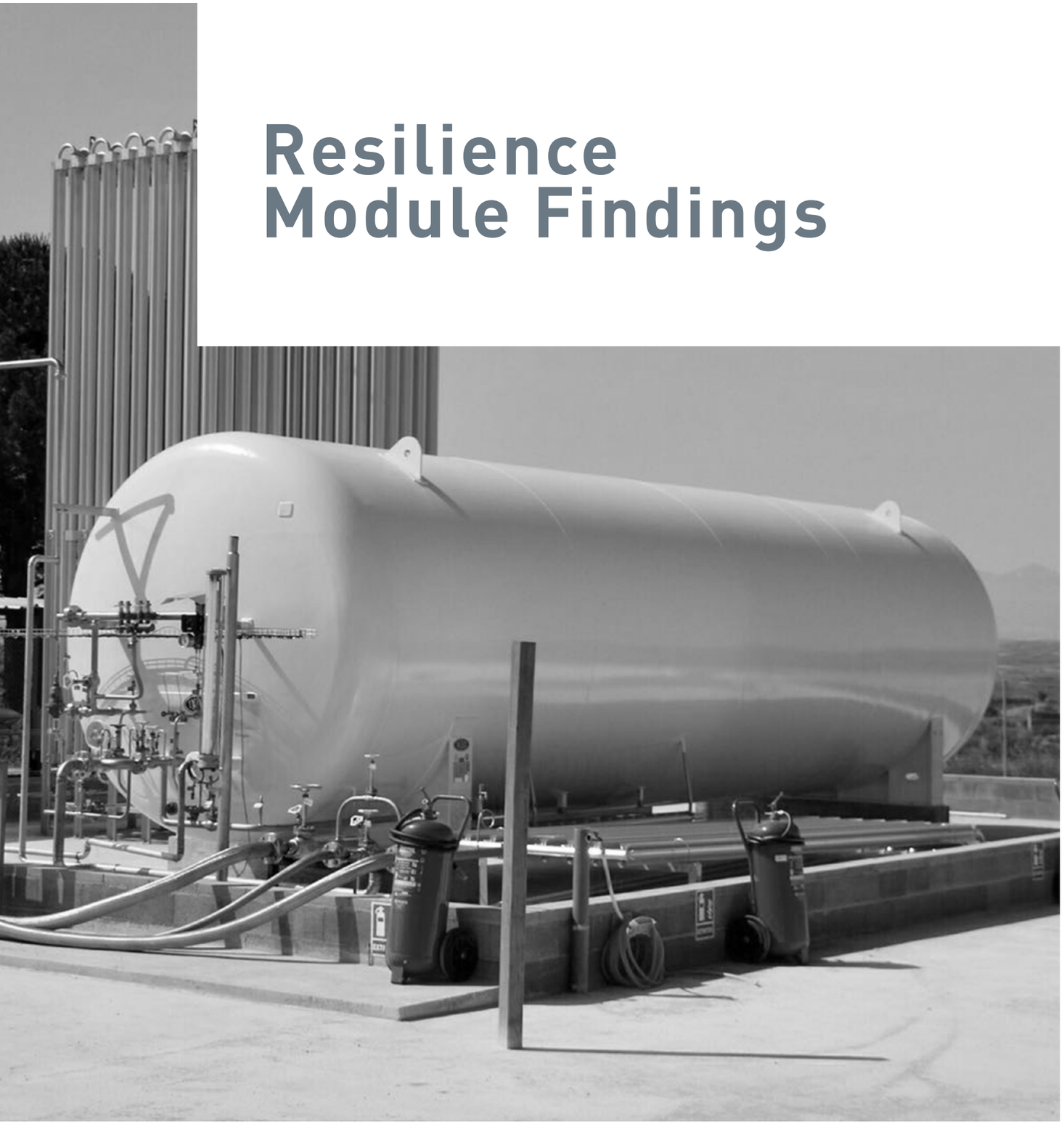
1. Leadership and Governance
2. Risk Assessment
3. Business Strategy
4. Performance Metrics and Targets

These four sections included eight high-level questions with more than 150 discrete answer options.

It is important to note that the Module is a firm-level assessment. The Module does not directly evaluate asset-level risk or resilience. The purpose of the Module is to provide information about management; not asset-level risks or risk mitigation. This focus reflects GRESB's long-standing priority on aggregating information to scales most relevant to investment, and the recognition that it is not yet possible to systematically develop and communicate standardized asset-level assessments of the full breadth of transition, physical, and social risks addressed by the Module.

RESILIENCE MODULE FINDINGS

Resilience Module Findings



Participation in the Resilience Module increased by 96% to 316 entities in 2019, up from 150 entities in 2018. This increase also includes a broader range of entity-types, including infrastructure funds and property developers. Module participants reflected GRESB's global coverage of real asset companies, albeit with a modest over-representation of entities in the Americas and Oceania, balanced by under-representation of entities in Europe and Asia.

Figure 1.
Resilience Module participants by type

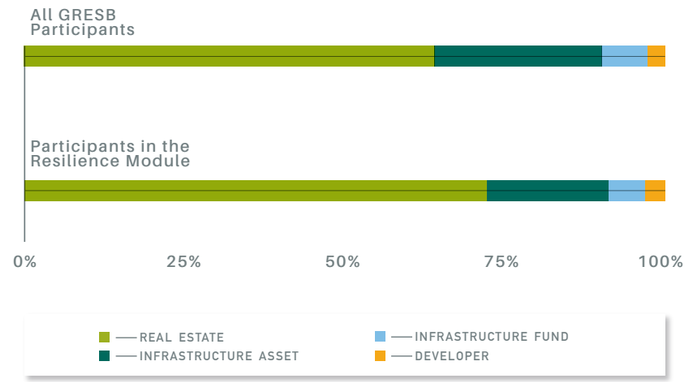
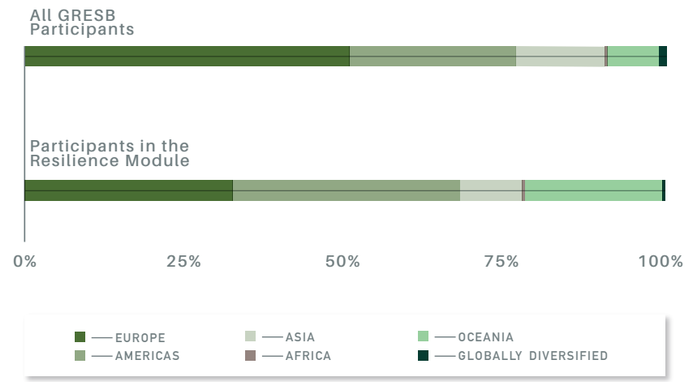
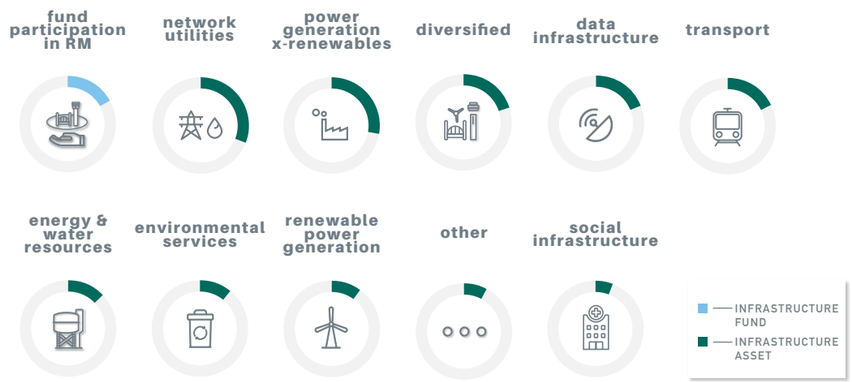


Figure 2.
Resilience Module participants by region



Module participants included all current GRESB assessments (e.g., real estate, real estate developer, infrastructure assets, and infrastructure funds). Infrastructure is particularly diverse, and Resilience Module participants covered all major infrastructure types.

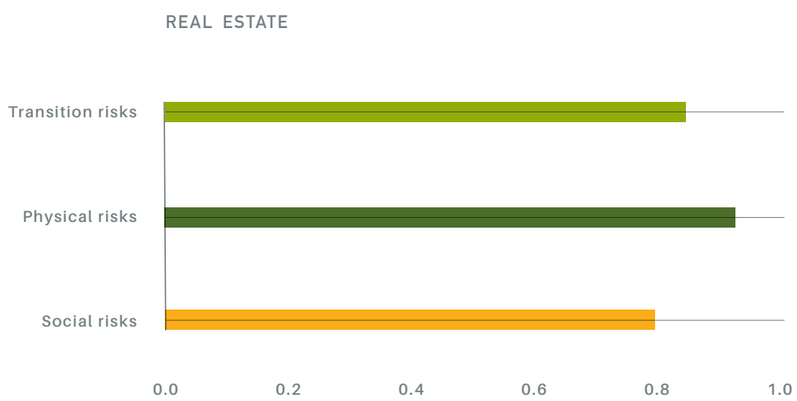
Figure 3. Resilience Module participants by infrastructure type



RESPONSES BY RISK CATEGORY

It is possible to draw additional insights by considering responses based on the type of risk. The majority of Module participants report evaluating exposure to transition, physical, and social risks. However, the rates of consideration vary, from 92% for physical risk, to 84% for transition risk, to 79% for social risk. Note that "consideration" is framed broadly, and, at this level, it is not yet possible to directly compare the scope or quality of assessment provided for each category.

Figure 4. Fraction of Module participants reporting systematic processes to assess the entity's exposure to climate-related risks

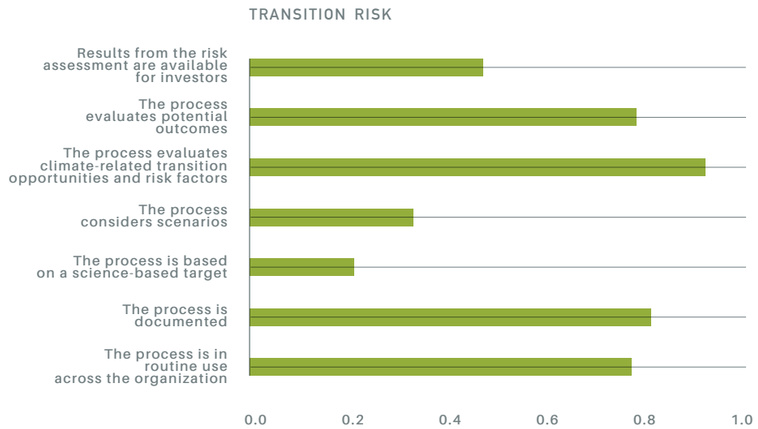


The Resilience Module also provided more granular information about how each type of risk is managed. This includes opportunities to report practices related to investor communications, scenario analysis, target setting, and performance measurement. The following sections describe results for transition risk, physical risk, and social risk.

Transition Risk

Transition risk has been described as risks associated with a sudden and disorderly adjustment to a low-carbon economy[3]. The speed and nature of the low-carbon transition have the potential to alter market conditions for real assets investors and managers. The majority of participants report that they have a systematic, operational process to understand and manage transition risk. Approximately one third of participants report that their processes consider future scenarios, and only one fifth report establishing science-based performance targets. Overall, less than half of participants provide information about transition risk to their investors.

Figure 5. Details of Module participant transition risk assessments and management processes



Most companies reported implementing business strategies to address transition risk. Energy efficiency was by far the most common strategy (new construction: 99%, standing investments: 99%), followed by energy demand management (new construction: 70%, standing investments: 79%), energy supply management (new construction: 66%, standing investments: 83%), and energy storage technology (new construction: 41%, standing investments: 32%).

Box 1: Leading real asset companies demonstrate a variety of resilience-related practices to address transition risk, including:

Leadership and Governance

- Firm-level goals and policies (e.g., a net-zero commitment)
- Qualified leadership and staff (e.g., board members with climate and low-carbon energy expertise)

Risk Assessment

- Firm-level materiality assessment
- Technical asset assessments

Business Strategy

- Commitment to the development and operation of high performance facilities
- Renewable energy generation and purchasing

Performance Metrics and Targets

- Target setting (e.g., science-based targets)
- Annual reporting and benchmarking (e.g., GRI, CDP, GRESB)

Learn more: 2 Degrees Investing Transition Risk Toolbox

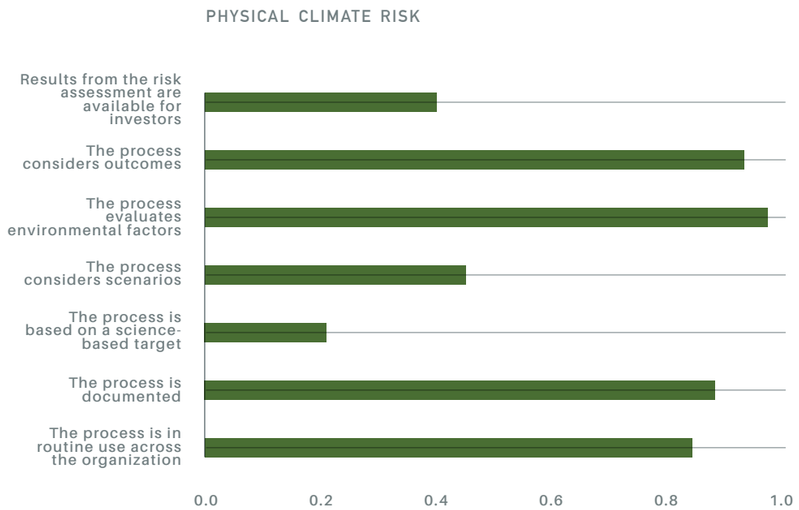
[3] Carney, Mark (2018) A Transition in Thinking and Action, International Climate Risk Conference for Supervisors, De Nederlandsche Bank, Amsterdam. URL: https://www.bankofengland.co.uk/-/media/boe/files/speech/2018/a-transition-in-thinking-and-action-speech-by-mark-carney.pdf

Physical Risk

The Intergovernmental Panel on Climate Change (IPCC) reports that a changing climate leads to changes in the frequency, intensity, spatial extent, duration, and timing of weather and climate patterns, and can result in unprecedented extreme weather and climate events[4]. These changes present substantial physical risks for real assets.

Nearly all participants report that they have a systematic, operational process to understand and manage physical risks. Less than half of participants reported that their processes consider future scenarios. The most common physical or environmental risks reported by participants included floods (90%), weather (85)%, seismic (78%), and biological factors (48%). Overall, less than half of participants report making information about physical risks available to their investors.

Figure 6. Details of Module participant physical risk assessments and management processes



Box 2: Leading real asset companies demonstrate a variety of resilience-related practices to address physical risk, including:

Leadership and Governance

- Firm-level goals and policies
- Qualified leadership and staff

Risk Assessment

- Firm-level materiality assessment
- Asset-level vulnerability assessments

Business Strategy

- Assessment and management of physical risk during due diligence
- Assessment and management of physical risk during development
- Assessment and management of physical risk during operations

Performance Metrics and Targets

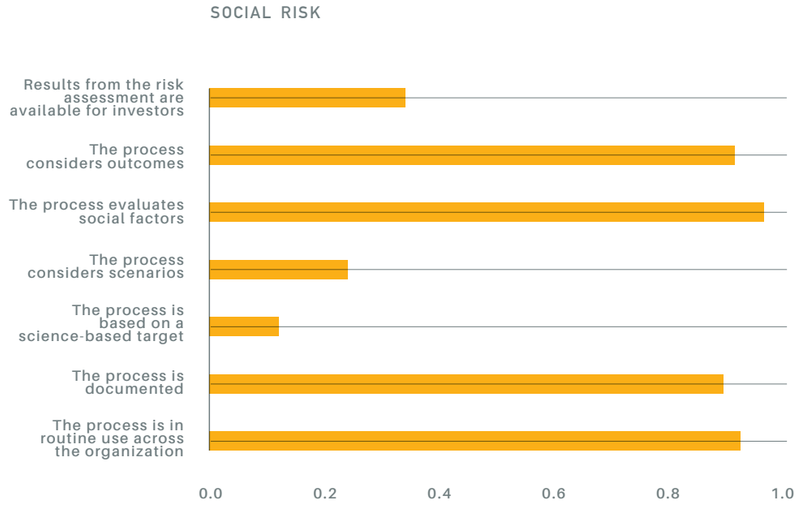
- Target setting (e.g., reduction in climate-related loses)
- Annual reporting and benchmarking on losses and impacts

Learn more: CalPERS (2019) Addressing Climate Change Risk

Social Risk

The majority of participants also report efforts to assess and manage social risk. There are significant differences in reported action on the answer options of social risk management. Almost all entities report a documented, operational process to understand social outcomes and evaluate specific factors. The most common social risk factors reported included physical security (75%), cybersecurity (72%), public health (57%), modern slavery (46%), and poverty (31%). However, only a minority of entities make information available to investors, consider future scenarios, or have something analogous to science-based targets. These results indicate that only a fraction of entities have comprehensive, integrated programs to understand, manage, and report on social risk.

Figure 7. Details of Module participant social risk assessments and management processes



Box 3: Leading real asset companies demonstrate a variety of resilience-related practices to address social risk, including:

Leadership and Governance

- Firm-level goals and policies
- Qualified leadership and staff

Risk Assessment

- Firm-level materiality assessment
- Asset-level vulnerability assessments

Business Strategy

- Assessment and management of social risk during due diligence
- Assessment and management of social risk during development
- Assessment and management of social risk during operations

Performance Metrics and Targets

- Target setting (e.g., improvement in social factors, reduction in losses associated with social disruption)
- Annual reporting and benchmarking

Learn more: CalPERS (2019) Addressing Climate Change Risk

[4] IPCC (2014) Summary for Policymakers: Managing the risks of extreme events and disasters to advance climate change adaptation. 20 pages. URL: https://www.ipcc.ch/site/assets/uploads/2018/03/SREX_FD_SPM_final-2.pdf

Overall, responses for transition, physical, and social risks indicate important patterns in the management practices of real asset companies and funds. Most companies claim to conduct systematic risk assessment. However, most companies are not using scenario analysis or considering specific, science-based targets. Less than half of companies regularly provide investors with the results from these assessments.

RESPONSES BY TCFD RECOMMENDATION

The TCFD is organized into four high-level recommendations for those wishing to disclose climate-related information in a consistent, comparable, and reliable manner:

- Governance
- Strategy
- Risk Management
- Metrics & Targets

Responses varied significantly among different GRESB participant types. Overall, real estate companies had the highest response rates across the four TCFD recommendations. Approximately a quarter of companies reported comprehensive programs addressing each of the four TCFD elements. The remainder of the participants indicated less comprehensive programs with the one quarter of firms reporting fragmented activities in only one or two categories. It is important to note that at least one firm responded to all answer options in each section. This indicates that some entities are at least self-reporting work on all relevant issues.

Governance

Governance represents 16% of the answer options in the Resilience Module. Governance had the highest average response rate of any category. The section consists of two top-level indicators, plus 24 answer options describing the entity's internal communication process, including designation of an internal leader for climate-risk and resilience, description of the qualifications of the leader, and the presence of an internal communications processes (e.g., written materials, presentations, or briefings provided to the Board of Directors). Entities reporting a greater number of answer options are more likely to have a comprehensive governance process, including qualified leadership and a systematic communication process.

Table 1. Summary of governance responses

	Real Estate	Infrastructure Assets	Infrastructure Funds
AVERAGE PERCENTAGE OF GOVERNANCE ANSWER OPTIONS SELECTED	**59%**	**45%**	**76%**

Strategy

Ideally, risk assessment should provide the basis for the selection and execution of business strategies. There is not an ideal or generally applicable set of business strategies. Rather, the most relevant strategies are based on the specific risks and opportunities facing firms and their assets. Consequently, the Resilience Module provides flexibility in business strategy reporting, primarily providing structure around classifying risks and specific phases of development (e.g., acquisition, construction, or operations). The business strategy section includes 65 answer options. This constitutes 25% of the Resilience Module.

Table 2. Summary of business strategy responses

	Real Estate	Infrastructure Assets	Infrastructure Funds
AVERAGE PERCENTAGE OF STRATEGY ANSWER OPTIONS SELECTED	**45%**	**23%**	**46%**

Risk Management

After governance, risk management is the foundation for efforts to respond to climate risk and promote resilience. The Resilience Module addresses this with three indicators providing complementary coverage for information about the assessment of transition, physical, and social risks. Together, the three risk management indicators represent 46% of answer options in the Resilience Module.

Answer options in this section provide opportunities to describe whether the risk management process is in routine use, documented, and guided by explicit targets. It also provides options for specific factors included in risk assessments, as well as outcome measures (e.g., asset value, continuity of operations, risks to individuals, etc.). In total, there are 27 discrete answer options for environmental risk, 28 answer options for social risk, and 40 answer options for transition risk.

There is nothing intrinsically superior about satisfying all of the answer options; however, a firm responding to a high percentage of answer options is more likely to be using a systematic, well-documented management process that addresses major risks and measures impacts on business value. A low percentage increases the chance that some risk management elements may be missing.

Table 3. Summary of risk management responses

	Real Estate	Infrastructure Assets	Infrastructure Funds
AVERAGE PERCENTAGE OF RISK MANAGEMENT ANSWER OPTIONS SELECTED	**46%**	**15%**	**59%**

Metrics and Targets

The final TCFD recommendation addresses performance targets and metrics. The Resilience Module offered six answer options for this category . These measures constitute 13% of the Resilience Module. They are divided into two indicators. The first addresses climate risk and resilience targets for transition, physical, and social risk management. The second addresses measurable performance metrics, again for transition, physical, and social risk.

Table 4.
Summary of metrics and targets responses

	Real Estate	Infrastructure Assets	Infrastructure Funds
AVERAGE PERCENTAGE OF METRICS AND TARGETS ANSWER OPTION SELECTED	**34%**	**20%**	**35%**

Figure 8.
Resilience Module participant responses by TCFD recommendation for real estate companies and funds. The pie charts on the right margin indicate the average response for each TCFD category

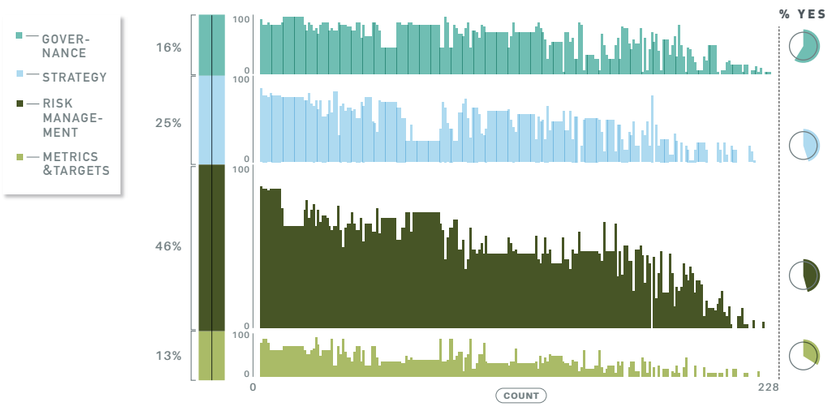


Figure 9.
Resilience Module participant responses by TCFD category for infrastructure funds. The percentages along the right margin of each graphic indicate the average response per TCFD category

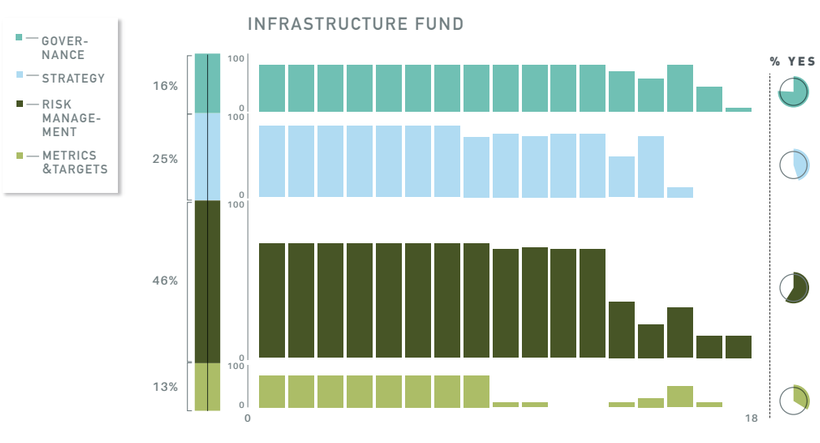
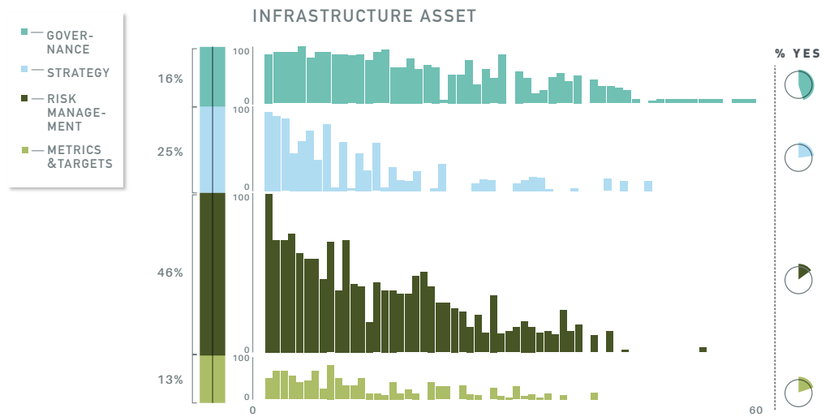


Figure 10.
Resilience Module participant responses by TCFD category for infrastructure assets. The percentages along the right margin of each graphic indicate the average response per TCFD category



SCENARIO ANALYSIS

Scenario Analysis

The TCFD encourages the use of forward-looking scenario analysis to understand climate-related risks and opportunities[5]. According to the TCFD, the purpose of scenario analysis is to consider and better understand how an organization might perform under different future states (i.e., its resilience/robustness). TCFD recommends that scenarios bound the range of plausible future conditions. This minimally includes what is widely referred to as a "2°C scenario", along with other scenarios tailored to an organization's circumstances.

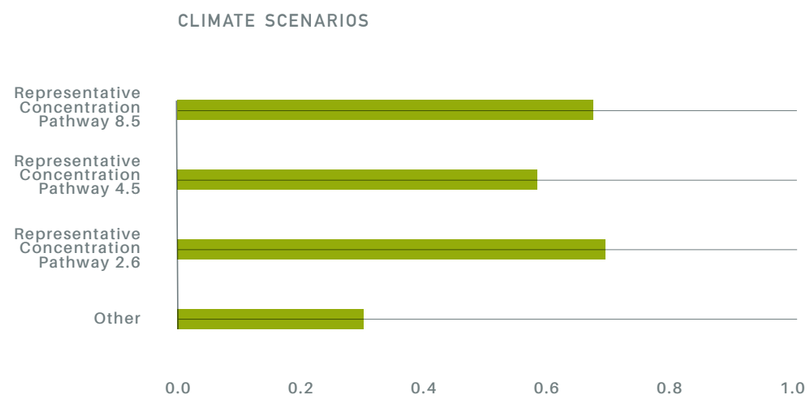
The international scientific community frequently uses a well-defined set of Representative Concentration Pathways (RCPs) to frame studies of climate policy through 2100[6]. These RCPs describe specific profiles of atmospheric concentrations of GHGs resulting in a set of radiative forcing estimates at the end of the century and have been broadly understood to represent specific global average surface temperature targets. They are used to frame a wide variety of climate-related transition scenarios and climate projections.

RCP8.5 generally reflects steadily increasing global energy demand and the continued use of carbon-intensive fuels, such as coal. Global emissions continue to increase throughout the century in RCP8.5, before leveling off near 2100. RCP2.6 reflects a relatively rapid decarbonization with global emissions peaking near 2020 in RCP2.6 and then declining steadily throughout the rest of the century. Despite their sophistication, the RCPs remain relatively coarse tools for understanding economic, social, and land-use factors. Consequently, there persist large challenges in applying these tools to features such as small buildings or regional infrastructure (e.g., a water supply system).

Scenario analysis is a complex topic, and it is difficult for a GRESB-style assessment to fully evaluate the breadth and technical depth inherent in the practice. The 2019 Resilience Module requests basic questions about the use of scenario analysis and the selection of scenarios. In 2019, 24% of Resilience Module participants reported using scenarios to assess transition risk, and 45% of entities report using scenarios to assess physical risk. The Resilience Module asked about the selection of specific concentration pathways for their scenario narratives. The most common scenarios were aligned with RCP2.6 (69%) and RCP8.5 (67%).

[5] TCFD (2017) Technical Supplement: The Use of Scenario Analysis in Disclosure of Climate-Related Risks and Opportunities.
URL: https://www.fsb-tcfd.org/wp-content/uploads/2017/06/FINAL-TCFD-Technical-Supplement-062917.pdf
[6] van Vuuren, D.P., Edmonds, J., Kainuma, M., Riahi, K., Thomson, A., Hibbard, K., Hurtt, G.C. Kram, T., Volker, K., Lamarque, J., Masui, T, Meinshausen, M., Nakicenovic, N., Smith, S.J, and S.K. Rose (2011) The representative concentration pathways: an overview. Climatic Change 109:5
URL: https://doi.org/10.1007/s10584-011-0148-z

Figure 10.
Climate scenarios used by Module participants



OVERALL INDUSTRY PERFORMANCE

Overall Industry Performance

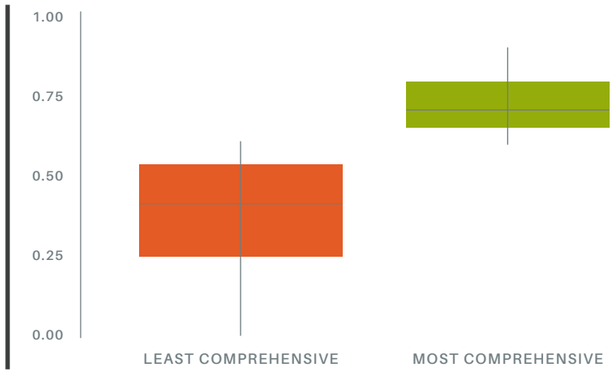
Responses to the 2019 Resilience Module provide initial insights about the state of the industry with respect to climate risk and resilience. Overall, engagement on climate risk and resilience is clearly increasing among investors and participants companies and funds. Engagement is broad-based geographically and ranges multiple industries, including real estate and infrastructure.

Resilience Module results also clearly indicate significant differences among market participants. However, consideration for individual elements or management categories does not entirely represent the sum of firm-level management practices. This includes the degree to which firms are adopting multiple, ideally coordinated, practices.

It remains difficult to evaluate the quality and coordination of management practices; however, it is possible to compare the comprehensiveness of practices, at least as measured by the fraction of all possible responses in the Resilience Module. For this analysis, Resilience Module participants were divided into quartiles based on the comprehensiveness of their responses. The mean and variance for each tranche were compared to understand differences among market participants. A market with a relatively even distribution of practice would have similar means and variance across tranches.

For the second year, results from the Resilience Module indicate large differences in mean and variance between the most and least comprehensive segments of the real estate industry. For real estate, the mean response for the most comprehensive quartile is approximately twice the response for the lowest quartile. Moreover, variance is more than 2.5 times larger than the most comprehensive quartile.

Figure 11.
Total response rates of the 25% most comprehensive entities and the 25% least comprehensive entities



OVERALL INDUSTRY PERFORMANCE

These differences can be seen in each of the four categories recommended by TCFD. Leaders are the most consistent in their coverage of governance. On average, leading companies report approximately 65% of possible governance answer options. Less comprehensive companies report approximately 40% with much greater variance. Differences for risk management and business strategy are similar and significant. Responses for targets and performance metrics show the greatest difference between the top and bottom 25% of entities. The most comprehensive companies reported an average 63% of the available answer options. The least comprehensive companies reported an average of 26% of answer options.

Figure 12.
Response rates of the 25% most comprehensive entities and the 25% least comprehensive entities for each of the four TCFD categories

CONCLUSIONS

Conclusions

Results show that real estate and infrastructure companies and funds around the world are beginning to pay attention to climate risk and resilience. The broad conclusions match those from 2018. Most real asset companies report to have:

- Established clear internal leadership;
- Conducted risk assessments, most often for physical risk; and
- Implemented business strategies during development, operations, and acquisition.

A smaller subset of companies report establishing clear management targets and tracking relevant key performance indicators. Only a small subset of leading companies report comprehensive action to address all four categories addressed by the TCFD recommendations.

Companies seeking to create relevant management structures need to establish qualified and empowered internal leadership. This leader needs to coordinate relevant risk assessments across a range of scales. In turn, the results from the risk assessments need to inform business strategies, which, ideally, are consistently applied during due diligence, development, operations, and end-of-life. Critically, these efforts are carried out to achieve specific targets and accountability is promoted through systematic performance measurement. These elements can generally be observed, and companies can follow the example of forward-looking companies around the world.

Generally speaking, establishing a complete and integrated management process is necessary, but not sufficient, to address climate risk and promote resilience. Moving forward, it will be important to understand the quality and effectiveness of the overall management program - not simply the existence of essential elements. This is difficult to evaluate, particularly given the relative lack of information on measured outcomes. Addressing this situation will require linking management intent with performance measurement, such as insurance claims, changes in asset value, and variance in operating income.

In the short term, the results show that resilience-related practices vary significantly among real estate and infrastructure companies and funds. This means that investors will need to ask more and better questions about how their investments are identifying potential risks and integrating these considerations into business strategies. Similarly, companies and funds will be challenged to expand and improve their practices to meet rising expectations and changes in transition, physical, and social risk profiles. The GRESB Resilience Module and core assessments will evolve to drive and support these important steps to enhance and protect shareholder value.

Acknowledgements & Resources

This report was made possible with support from Stanford University Schneider Fellows Tracy Fan (2018) and David Yosuico (2019).

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Annex

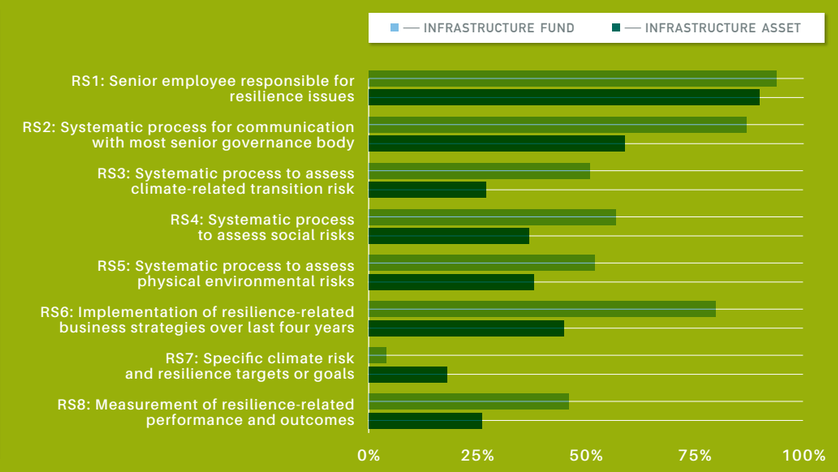
RESPONSES BY RESILIENCE MODULE INDICATOR

A summary of responses by indicator provides the highest level summary of Module results for real estate, developer, infrastructure, and infrastructure funds. At this level, the data are binary, "yes or no" responses to each of the eight indicator questions (e.g., "Does the entity have a senior employee responsible for climate risk and resilience issues?"). The following figures present the fraction of positive responses for each indicator. Modest changes of the indicators themselves and significant changes in the composition of responding entities make it difficult to draw meaningful insights from year-over-year changes. As such, these figures are not presented in the body of this report.

Figure A1. Resilience Module responses by indicator for real estate

These high-level responses show that some level of consideration for climate risk and resilience is wide-spread among real asset companies and funds. The most common practices include designating a responsible individual, assessing physical risks, and implementing some level of resilience-related business strategies. Conversely, action to establish specific targets or goals and measure related outcomes lagged other indicators.

Figure A2.
Resilience Module responses by indicator for infrastructure



Responses for infrastructure followed real estate in indicating broad-based consideration of climate risk and resilience-related management practices. However, infrastructure entities had significantly lower response rates for most answer options, particularly in the assessment of transition risks and the specification of targets and goals.

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