Financing resilience in the energy transition

How lenders and investors can mitigate the risks to renewable energy infrastructure

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Foreword

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Global investment in renewable energy grew 11% in 2024 to US$2.1 trillion, a record level of growth that must be maintained—and even accelerated—if commitments made to limit global warming are to be met.

According to our survey of 250 executives from the banking and investment sectors, appetite to meet this need remains strong, with the vast majority looking to increase their financial outlay over the next three years.

This appetite, however, is not indiscriminate. With the demand for capital outstripping supply, financiers are selective about the projects they invest in. And, increasingly, they are making these decisions based on the long–term resiliency of a project.

How they identify and embed that resilience into their investments is a key question. As the technology increases in sophistication and the scale of renewable energy assets grows exponentially, financiers are turning to external engineering expertise for help.

As this report explains, the role of insurance in renewable energy infrastructure projects is not just a matter of financial protection against risk. By combining that protection with decades of risk engineering expertise and bespoke research and testing, financiers can embed resilience into the projects they back—and protect their returns in the long term.

Key findings

The appetite to finance renewable energy projects is strong.

76% of lenders and

70% of investors plan to increase their financial commitment to the sector over the next three years.

But while capital is plentiful, the supply isn't bottomless.

64% of lenders and

58% of investors say demand for finance outstrips supply.

This allows financiers to be selective in their investments, with a strong focus on project resilience.

Most say a project's resilience to risk has a moderate or significant impact on:

Financiers are alert to risks throughout the construction and operation of infrastructure projects.

According to financiers, the greatest risks **during construction** are:

48% Rising equipment costs

43% Rising construction costs

39% Regulatory/ permitting delays

And the greatest **operational risks** are:

56% Failure of generation equipment

54% Failure of support infrastructure

49% Supply chain disruptions

In addition to insurance, they expect projects to engage external expertise to mitigate these risks.

53% expect projects to employ third-party risk assessment during construction.

48% expect them to consult with external engineers during operation.

01 Risk and resilience in the energy transition

The sheer scale and complexity of the renewable energy projects built today dominates most renewable energy conversations, because without them the transition would be impossible. But behind the scenes of these vast infrastructure projects, lies an equally important factor in the energy transition—finance.

In 2023, it was estimated that 40% of the world's electricity generation came from renewable sources. But, according to the International Renewable Energy Agency, the growth rate will have to triple by 2030 to limit temperature rises to 1.5 degrees above pre–industrial levels.

40%

IN 2023, IT WAS ESTIMATED THAT 40% OF THE WORLD'S ELECTRICITY GENERATION CAME FROM RENEWABLE SOURCES

Thankfully, the financial appetite to fuel these ambitions is strong. Nearly three quarters (73%) of the financiers we surveyed, all of whom are involved in funding renewable energy infrastructure, plan to increase their investments in the next three years. This includes 28% who plan to do so 'significantly' (Figure 1).

Renewable Power Capital—a specialist firm backed by the huge Canadian Pension Plan—is one of the larger investors in the space, with around US$1.5 billion invested in projects across Europe.

Sebastian Vondrus, principal at the firm, says the investment landscape in renewables "has changed profoundly in the last five years".

"The mix of investors has really changed with more private capital coming in to back developers, fund the construction and even own assets long term," Vondrus says. "Pension funds and insurers are also increasingly comfortable investing directly whereas in the past they would have gone through private equity or fund managers."

Since 2019, FM, one of the world's largest commercial insurers, has invested in a range of renewable projects and while Pamela Griffing, chief tax officer, agrees investment appetite is strong, she argues the motivations of financiers vary.

"Some are looking for a long-term partnership with a developer or energy provider, while some want to walk away after a set period of time. Others might not want a partnership but they will want a deeper level of information about the project," Griffing says.

FM is actively involved in every project it invests in, diving deep and way beyond the finance, Griffing explains. "We're looking for something well-constructed, designed and managed by experienced developers, and we want to know who the insurance company is. Satisfaction on all these points is mandatory before we'll invest," she says.

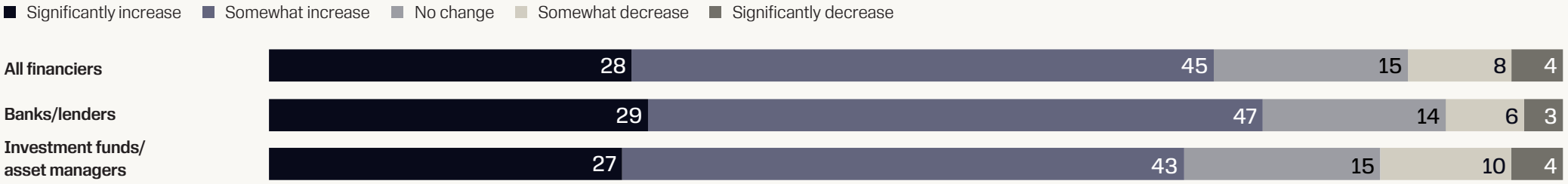
Despite the array of financiers operating in the space, demand for finance is greater than its supply, most of our survey respondents agree: 61% of financiers agree that demand outstrips supply, including 64% of lenders and 58% of investors.

61%

OF FINANCIERS AGREE THAT DEMAND FOR RENEWABLE ENERGY INFRASTRUCTURE FUNDING OUTSTRIPS SUPPLY

FIG. 1. MOST FINANCIERS PLAN TO EXPAND THEIR FUNDING FOR RENEWABLE ENERGY INFRASTRUCTURE

How does your institution plan to change its level of financing or investment in renewable energy infrastructure projects in the next three years? (% of respondents)



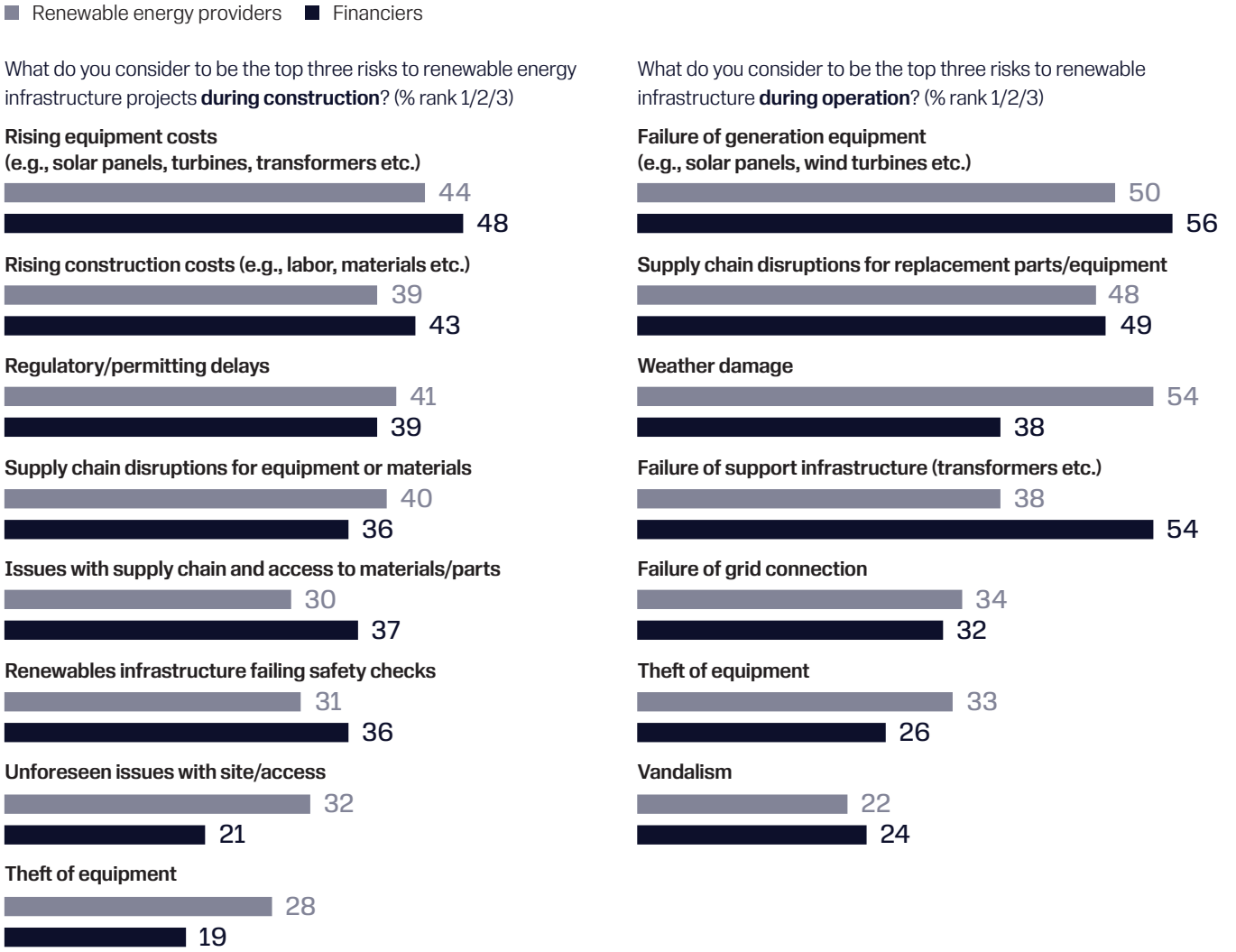
Note: Numbers may not total 100% due to rounding.

This allows financiers to be discerning in the projects they support. And resilience, our survey shows, is a crucial influence on their decision-making: 72% say a project's resilience to risk has a "moderate" or "significant" impact on the deal terms they offer; 69% say it influences their valuation and 66% their willingness to invest in or fund a project.

"The resilience of a project is really important," says Vondrus. "We want to see stable, predictable and long-term cash flows and we want to influence all the risks that can be controlled, during both construction and operation."

The risks to which a project is exposed evolve during their lifecycle. During construction, financiers believe the chief risks are rising equipment costs (48%), rising construction costs (43%) and regulatory/permitting delays (39%). These are broadly aligned with the main risks identified by the 400 executives from renewable energy providers that we also surveyed (Figure 2).

FIG. 2. FINANCIERS AND ENERGY PROVIDERS ALIGN ON THE TOP RISKS DURING CONSTRUCTION BUT DIVERGE ON OPERATIONAL RISKS



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> Principal, Renewable Power Capital

While financiers are naturally keen to optimize cost, buying the cheapest possible equipment can be a false economy.

“Getting the procurement right at the very beginning is essential,” explains Cyrille Arnould, CEO and founder of Annycent Capital, which invests in renewable energy projects in emerging markets. “Because if issues emerge once the asset is built, it’s probably too late to do much about it.”

Indeed, the failure of generation equipment is financiers’ top-ranked risk during the operation phase, as identified by 56% of respondents, followed by failure of support infrastructure (54%) and disruptions to the supply chain for replacement parts or equipment (49%).

Here, there is a discrepancy with the views of renewable energy providers, who picked weather damage as their greatest risk (54%, compared with just 38% of financiers).

The vulnerability of renewable energy infrastructure to weather damage has become glaringly apparent in recent years: one estimate suggests that since 2018, hail-related losses to solar projects in Texas alone have exceeded US$600 million, with the average claim costing in the region of US$60 million.

So, while financiers are right to be concerned about the quality of equipment—much of which is new and largely untested—our survey suggests they should pay equal attention to their projects’ resilience to extreme weather events.

US$60 million

AVERAGE INSURANCE CLAIM FOR HAIL DAMAGE TO RENEWABLE ENERGY INFRASTRUCTURE IN TEXAS SINCE 2018

Source: DNV

02

Tapping into resilience expertise

With a finite amount of capital to provide, financiers want to commit to projects they believe will produce energy—and financial returns—consistently and in the long term.

"We look for projects with good site selection, community support and developers who are mindful of the full lifetime of the project—from design through to generating power for 20 years or more," says Vondrus.

As part of this need for long-term value, many financiers demand that projects seek external expertise to help mitigate risks. For example, 53% expect projects to undergo independent, third-party risk assessment during construction. And 48% expect them to consult with external engineers during operations (Figure 3).

FIG. 3. FINANCIERS EXPECT RENEWABLE ENERGY INFRASTRUCTURE PROJECTS TO SEEK EXTERNAL EXPERTISE TO MITIGATE RISKS

What measures do you expect a renewable energy infrastructure project to adopt to mitigate risks **during construction**? (% of financiers)

What measures do you expect a renewable energy infrastructure project to adopt to mitigate risks **during operation**? (% of financiers)

"The people running the project are just as, if not more, important than the design," explains Arnould, "and I would always want my engineering resource on a project to oversee contractors."

He adds: "There is a cost/benefit analysis to be done, but you have to be open to external expertise. It's about being open to support, rather than dependent upon it."

Other risk mitigations that financiers expect include dedicated construction insurance (46%), and regular maintenance and inspections during operation (62%).

The insurance sector is uniquely positioned to respond to many of these needs, providing both physical and financial protection. But financiers are becoming increasingly discerning about which insurers they partner with.

"We don't view insurance as a commodity. We engage with brokers and insurers that are credible in front of the banks we work with and they need to have a track record in the space we are operating in," says Vondrus.

"What we do is highly technical and highly regulated, so talking with someone who speaks the same language, who is credible in front of finance partners, is really important to us."

As this suggests, the role of insurance goes beyond financial protection against risk. Financiers expect their insurance partner to provide data and insight into the nature of risk, today and tomorrow.

"Insurers have some of the deepest pools of data and that is where their true value lies, in my opinion. It has to be about risk expertise as well as compensation," says Arnould.

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Cyrille Arnould
CEO and founder, Annycent Capital

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>
> **Sebastian Vondrus**
> Principal, Renewable Power Capital

Resilience is the premium that developers and energy providers must pay to secure investment and, increasingly, that resilience can be found in the expertise and experience of the insurance sector.

“The sophistication of operators in the renewables space has increased dramatically in recent years and that has been a function of more risk transfer to insurers taking place, rather than to counterparties,” says Vondrus.

The complexity of the technology, and the often-extreme environments in which it operates, mean the potential liability is too high to be absorbed by traditional risk sharing with manufacturing and construction firms.

“Insurers have a role to play far beyond indemnity. You can learn a lot more from them about the broader risk landscape and the good ones have a very sophisticated understanding of, and approach to, renewable risks. It’s a cross pollination of ideas and perspectives,” adds Vondrus.

Bringing in the support of one of those quality insurers can give financiers more confidence when deciding upon their next investment opportunity.

“If we need to borrow for a project, our lenders are going to go through the insurance policy with a fine-tooth comb, so we care about which insurers are attached to the project.

“It’s not just about the depth of their pockets. It’s about whether they have experience in the sector, will share that with you and can be trusted to pay in the event of a claim,” says Arnould.

“And if an insurer doesn’t want to back a project, you need to ask why that is.”

How can FM help you get ahead of risk?

By preventing loss, we can power the future of energy. With more than 70 years' experience in the energy sector, FM Renewable Energy can help you to define your current and future risk exposure and develop a plan to protect your assets today while building resilience for the future.

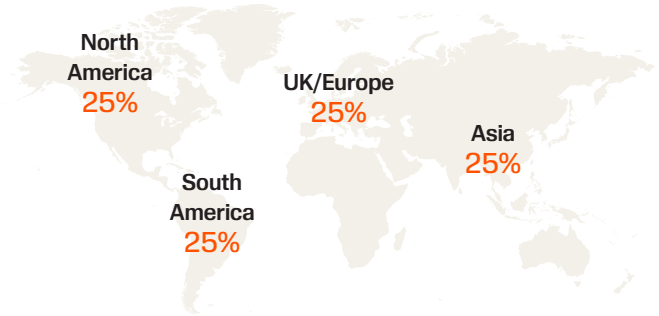
- Reducing risk starts with identification, beginning with a client site visit. With FM, you gain access to a team of scientists, technicians and engineers in 14 countries. Our account and field engineers work to understand key property hazards at your facilities and work with you to find practical, cost-efficient solutions.
- While big risks are getting more sophisticated, we're getting smarter. FM Renewable Energy brings a different perspective to risk. We know that no two risk profiles are the same, so we work closely with our clients to understand their specific exposures and develop tailored responses for them.
- Founded on the belief that most losses are preventable, risk management is core to our proposition. Our role is to make your assets as resilient as possible to the risks of today and tomorrow, and we have a clear record of continuous risk improvement through every year we work with a client.
- A science-based and research-led approach forms the foundation of our reputation for engineering excellence. Renewable energy is no different, and we are already drawing unique risk insights from the 20 renewables-focused research projects we have embarked on.

Methodology

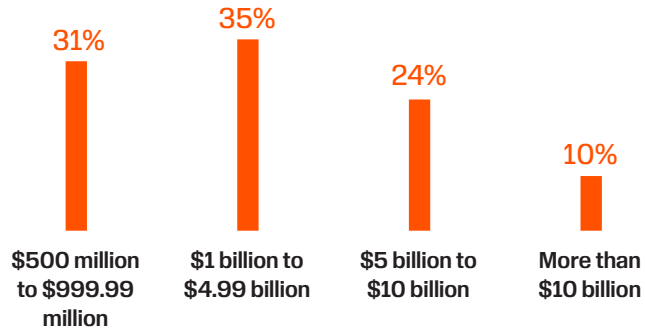
In August and September 2024, FM surveyed 400 executives from renewable energy providers and 250 financiers involved in the renewable energy sector. The respondents' demographic profile is as follows:

Renewable energy providers

REGION

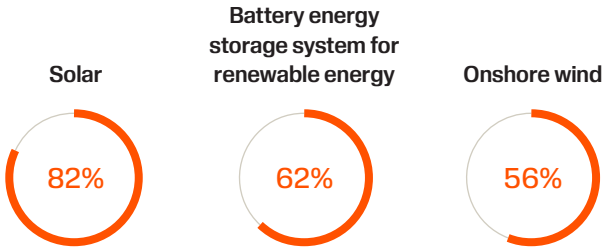


COMPANY SIZE (ANNUAL REVENUE)



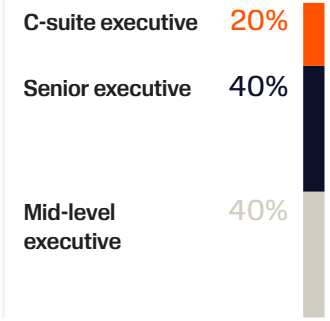
All currency figures shown in US dollars

INFRASTRUCTURE TYPES OPERATED



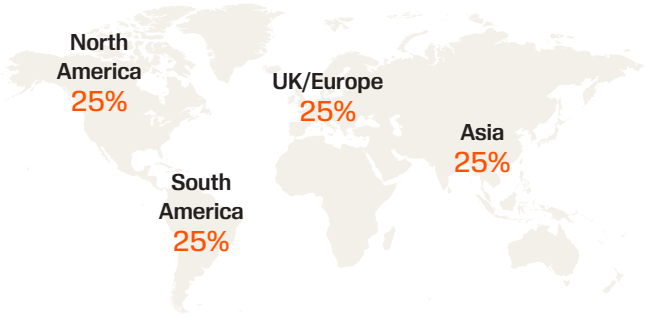
FUNCTION

SENIORITY

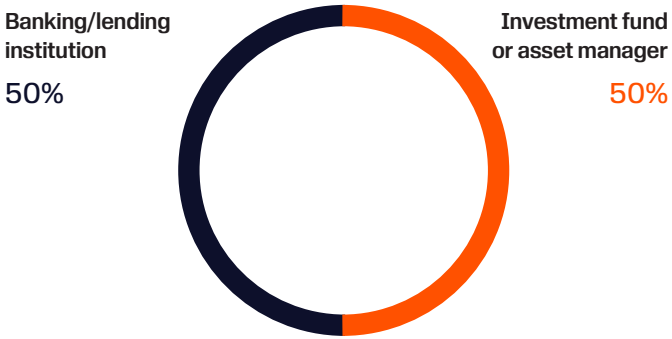


Financiers

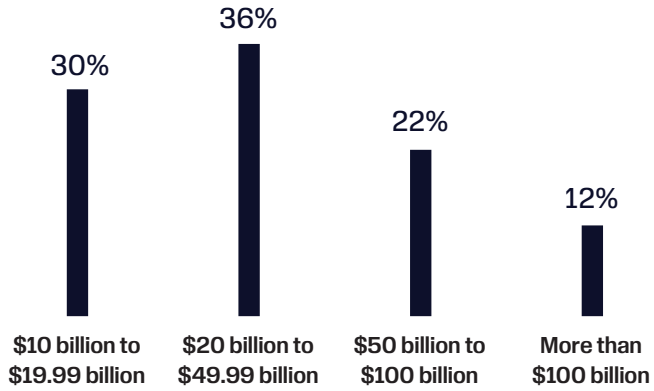
REGION



TYPE OF INSTITUTION

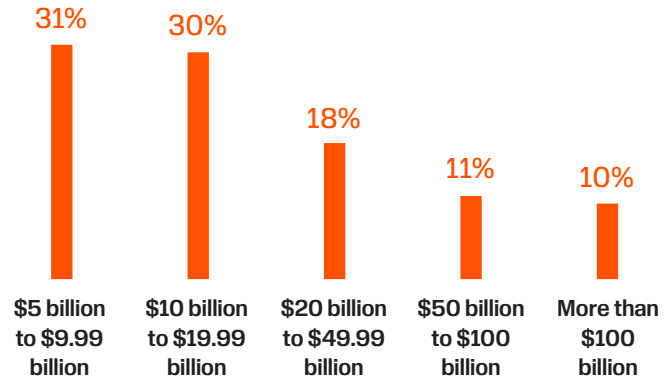


LOAN PORTFOLIO – BANKING/LENDING INSTITUTIONS



All currency figures shown in US dollars

ASSETS UNDER MANAGEMENT – INVESTMENT FUNDS AND ASSET MANAGERS



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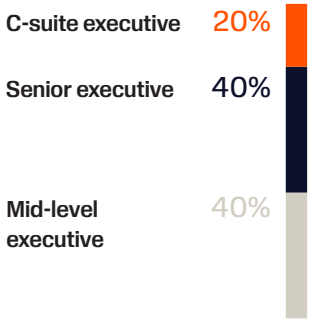
SENIORITY



Protect your purpose