Next-gen renewables: Risk, resilience and insurance readiness

Renewable Energy Market Review

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Introducing the Renewable Energy Market Review 2025

From the desk of Global Renewable Energy Leader, Steven Munday

From boomers, to Gen X, to millennials, to Gen Z, the new evolution is upon us: Gen R, the next phase of renewables. In this Renewable Energy Market Review, the theme is clear. Despite calls to double-down on carbon-based technologies in some regions, clean energy technologies are evolving at pace. The sector is pushing the needle on innovation at scale and momentum is growing for hybrid, complex and integrated technology projects.

The renewable energy electrification sector is on the cusp of its next wave of evolution, pioneering not only power generation but energy storage, whilst aligning with the wider clean energy sector opportunities. Whilst clean carbon-based technologies are likely to have marginal growth on their existing footprint, it will be the renewable and clean energy technologies which will experience exponential growth to meet the increasing global demands of electrification.

There's clear innovation and investment in renewable technologies

In our Global Clean Energy Survey 2025, solar photovoltaic, as the world's cheapest form of power, is by far the most prominent priority in the near term, followed by hydropower and fixed onshore and offshore wind,[1] where China's manufacturing powerhouse continues to respond as a disruptor with more affordable and scalable technologies. But on a longer-term horizon, there's a shift toward more developing and nascent technologies. 49% are prioritizing battery storage over the next five years with strong roll-out and take-up in core countries and 44% are prioritizing hydrogen as a developing technology poised to overcome initial challenges and contribute over five to 10 years.

Further ahead, there are many emerging technologies, floating solar photovoltaics, floating offshore wind and geothermal are being more widely deployed, especially in Asia. Other opportunities are emerging in gravity and pumped hydro storage systems, bioenergy and small modular reactors – all with a greater focus on circular economy models – are pointing to innovative and creative solutions to renewable and clean energy challenges.

Insurance can turn obstacles into enablers

But natural resources companies list insurance as a potential barrier to their development. 57% of renewable energy companies in our Global Clean Energy Survey listed risk engineering requirements as a top five obstacle to transferring clean energy risks to the insurance market. Lack of suitable insurance products (51%) and blanket or excessive exclusions (49%) followed as the second- and third- highest obstacles.

In this Review we explore opportunities to turn obstacles into enablers

Softening market conditions endure across the insurance market, with an oversupply of capacity with more positive returns resulting in increased competition. Many different market sectors and product lines are increasingly supporting the sector with downward pricing a growing trend. Globally, natural catastrophe primary and secondary perils continue to be impactful.

This is creating white space for product innovation and capacity restructuring. Insurers are focusing on differentiating themselves in a competitive market by investing in new solutions to address clients' challenges:

- Evolving solutions to disruption caused by supply chain volatility
- Increased blending of traditional and parametric alternative risk transfer solutions
- Performance insurance is now more available in the early stages of project design, enabling project owners and managers to safeguard against technology non-performance and securitize debt to drive down the cost of financing
- Insurers are bringing product lines under a single umbrella to build a stronger suite of solutions to support clients

In this window, natural resources companies have opportunities to use risk and insurance strategically, supported by engineering and analytics as an enabler to facilitate debt, investment and bankability for clean energy projects.

Data, analytics and engineering will be key

A balance of informed risk retention and considered transfer is critical to protect assets in the short-term, while building a sustainable business model for the long-term. Data and analytical models – such as WTW's **Connected Risk Intelligence** – can help clients set their risk tolerance and build the most efficient risk strategy that balances risk retention and transfer for the entire portfolio.

When transferring risks to the insurance market, technological elements of renewable or clean energy projects may initially appear unique or prototypical to insurers, but are constituent parts of proven technologies in other sectors now being used as part of a new integrated system. Risk engineers can assist and clarify this technology view, demystifying the degree of unproven elements within projects and bridging the gap across natural resources sectors to clarify the real difference between proven, evolving, unproven and prototypical technology.

Looking ahead

As trade tensions, tariffs and tax challenges evolve, renewable energy companies stand at a tipping point. While global pressures endure, the next wave of innovation continues to push the sector forward into new and uncharted waters. Different regions each face intrinsic risks and opportunities, but the renewable energy sector, connected across a global network, can step into the future with clarity and confidence, backed by risk and insurance.

At Willis, a WTW business, we will continue to keep our finger on the pulse of changing trends, and work with clients and insurance partners to continue innovating through the complexities and challenges of the clean energy transition. We look forward to discussing further with our clients and markets during our Global Renewable Energy Conference in Marrakesh in November 2025.

Steven Munday ACII
Global Renewable Energy Leader,
Willis Natural Resources

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The sun is shining on renewable energy insurance markets in 2025

Despite many issues around climate, casualty deterioration, social inflation and geopolitical conflict serving as drivers of the hard market last year, 2025 began positively for insurance buyers.

Key takeaways:

- Softening market conditions endure, with an oversupply of capacity increasing competition for insurers and driving pricing on a downward trend
- Natural catastrophe losses remain the major concern for both insurance markets and renewable energy companies – directly damaging assets and causing business interruption
- Risk and insurance solutions are evolving to support innovation, with peril diagnostics and parametric solutions helping to smooth volatility

2024 set the stage

2024 started with much optimism, with capacity providers operating in all renewable energy sectors demonstrating consistently robust technical rates. Despite reinsurers' concerns on the reported $50 billion-plus of severe convective storm losses which arose in North America in 2023, a relatively benign North American windstorm season and natural catastrophe losses below predictions, enabled most actors to achieve positive combine ratios at the end of the first quarter in property classes. Many carriers also entered the year with new or reinforced plans to engage with and capitalize on the growth projections and targets of a net-zero future.

2025 will deliver a strong performance

As we look ahead to the remainder of 2025, the optimism looks set to endure. 2025 began positively for insurance buyers with a general continued softening in London and the global markets driving rate reductions and greater capacity. Aside from casualty, insurance markets are keen to engage with renewable, clean and energy transition opportunities in all core product lines. While this is in keeping with a broad softening in terms and conditions in the market cycle, it is felt more acutely in the renewable energy sector where the insurance market growth over the last couple of years has added substantial new capacity, resulting in over capitalization and competition for quality accounts.

Softening market conditions are set to continue

When looking at the traditional London and international (re) insurance renewable energy market, we conservatively see in excess of $1 billon annually of written premium with core capacity providers, increasing to approximately $2 billion annually when looking at more widely.

This sits well against the more established oil, gas and chemicals sector, which is reported to have approximately $2 billion of written premium throughput in our 2025 Energy Market Review.[1]

10% reductions in year-on-year rates are available

In Q1 2025, the 1st April renewal season delivered an average of 10% reductions in year-on-year rates. The market is not yet 'super soft' with spiraling rates reductions and the leading markets setting technical terms and conditions to maintain an orderly and considered approach to the prevailing trading conditions. Rating pressures will continue to develop over 2025 and 2026, but remains sensitive to global capacity and terms, together with asset exposure to natural severity catastrophe events.

An oversupply of capacity is driving a softening market

Increasingly, new capacity is entering the renewable energy sector from the traditional construction, power and utility, oil and gas, and marine markets as insurers seek to remain relevant with their historical client base or achieve progression towards and adherence to their own ESG objectives.

While there continues to be strong growth in the overall market book, the market remains awash with proportional supporting capacity, with offered capacity regularly exceeding required levels. This could impact profitability for insurers on a longer-term horizon as they compete to win business by lowering pricing.

This is indicative of a softening market which has not found its level yet, with the larger technical and capacity leading markets frequently taking the first bites of the bait ball that is renewable energy. With cautious and managed reductions still appearing attractive, the surplus of proportional markets will find it increasingly difficult to gain traction and secure meaningful seats at the table. This has the potential to create an environment in H2 2025 onwards where capacity markets may be required to offer improved differential pricing to technical leaders to secure opportunities, further softening overall rates.

In response to the overcapitalization of the market, there are strong ambitions for more experienced supporting markets and new MGA (Managing General Agent) capacity to take a leading position and gain confidence to set rating terms for their own participation. By balancing their own appetite, resource and growth plans, strategies will be aligned to their engineering capability and risk understanding.

More experienced and confident supporting markets considering leading options on strategically attractive placements having an early seat at the table could be a disruptor to some traditional leading market terms.

We anticipate seeing competitive and attractive terms which may not be supported by mature infrastructures in underwriting resource and claims handling.

Natural catastrophes continue to rock the market, but insurers are weathering the losses

It remains ironic that many renewable technologies are reliant on weather as a resource, with wind, sun and rain increasingly directly exposed to vagaries of changing climatic conditions.

What constitutes a good year, or a poor underwriting year, for many capacity providers can still be heavily influenced by nat cat, probably more so than technology risks which can be better understood, predicted and rated accordingly to assessed risk.

The main drivers of nat cat losses in the last year were hurricanes Helene and Milton, together with secondary perils such as severe convective storm, floods in Dubai and wildfires in California. These secondary perils were once considered less significant, but are now major contributors to rising loss totals. Primary perils still hold the largest loss potential with history showing that just one major primary peril event, like a tropical cyclone striking an urban area with high population and property concentration, can trigger losses many multiples higher than the trend.

Insurance markets are responding to major natural catastrophe losses

While the market is softening in general, this due largely to capacity supply creating competition, not because of any demonstrable change in underlying risks to asset performance. Markets remain alive to the challenges of securing an appropriate rate for severe nat cat risks, not only in assessing the risks by location, but navigating reinsurance protection pricing.

Assets and markets have responded well to the damage and losses of last year and have avoided increased costs by moving to settlement quickly with favorable best-case outcomes. Swiss Re's natural catastrophe models point to a 1-in-10 probability that global insured losses could reach as high as $300 billion in 2025, making 2025 a peak loss year.[2] "Peak loss years, due to either the accumulation of many loss events or those from a few individual large events, should not be considered a freak occurrence. The last peak loss year was 2017, when hurricanes Harvey, Irma and Maria drove global insurance losses to 111% above trend. History repeats and it's not a question of if, but when the insurance industry will face the next peak loss year," according to Swiss Re.[3]

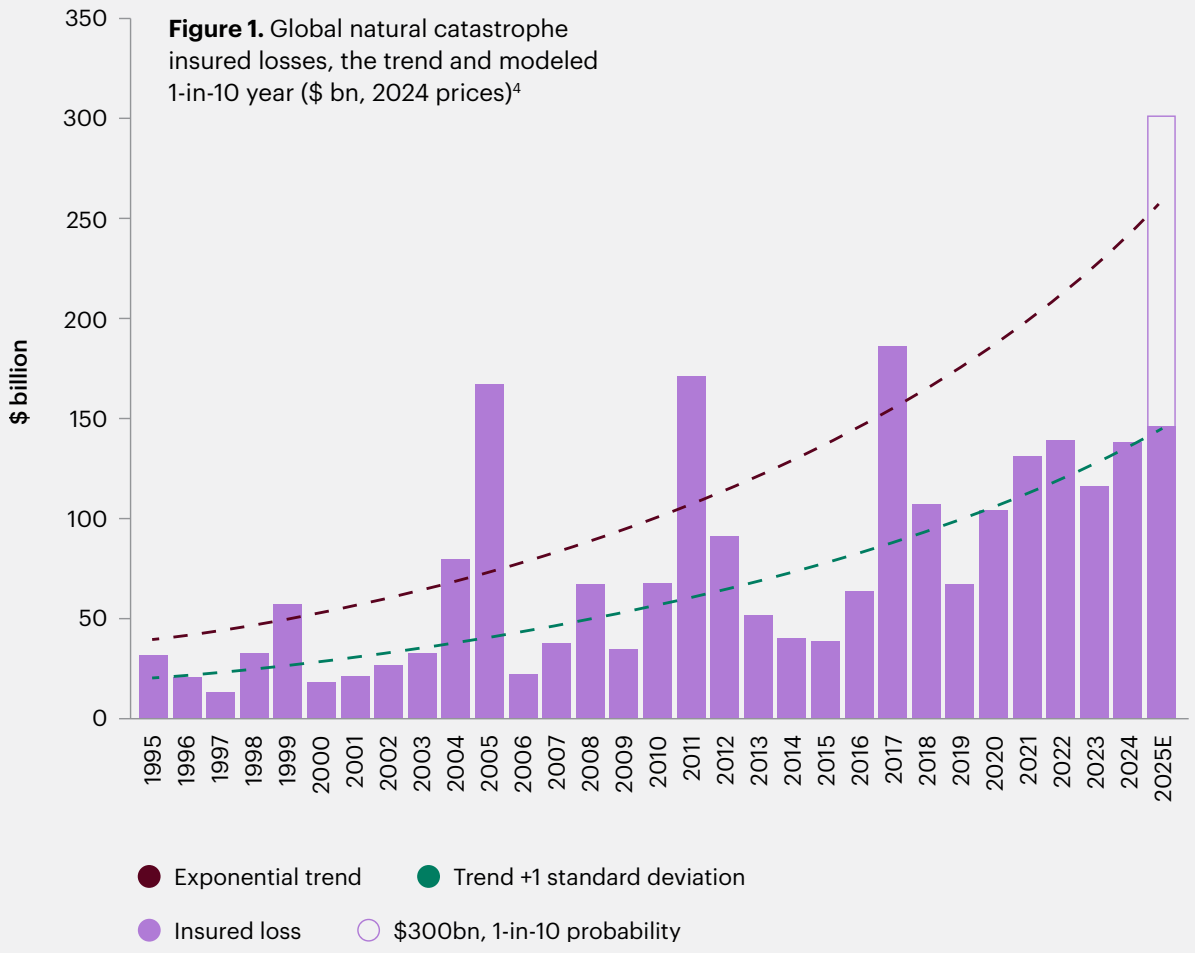

Figure 1. Global natural catastrophe insured losses, the trend and modeled 1-in-10 year ($ bn, 2024 prices)[4]

The reinsurance market is well able to absorb peak loss scenarios today. Global traditional reinsurance capital is currently estimated to be around $500 billion and alternative capital, including an estimated $50 billion from the cat bond market, contributes additional capacity to help cover a loss of this magnitude, reports Swiss Re.[5]

Global insured losses surpassed $140 billion in 2024, marking the fifth consecutive year insured damages exceeded $100 billion.[6] Total economic damages surpassed $350 billion, once again highlighting the inadequacy in resilience to climate-related risks.[7] With 2024 the first year to exceed 1.5°C warming,[8] the insurance protection gap for natural catastrophes stands at 60%, according to WTW's Natural Catastrophe Review.[9]

The global (re)insurance market continues to demonstrate the ability to successfully access competitive nat cat capacity. The level of risk which materializes has directly affected markets' profitability historically. But in 2025, appetite and rate for exposures in the current underwriting year and renewable and clean energy project's ability to meet their contractual and financial project exposures points to operating profitably.

Many of the nat cat modeling tools employed by underwriters in their technical assessments fail to account for the nuances and intricacies of nat cat risk exposures for renewable energy assets. In response to the threat of continued weather-related events, markets continue to expand their nat cat models towards non-peak perils – such as flooding, wildfires and storms – with these now regularly accounting for the bulk of insured losses, but more needs to be done to adopt a robust modeling methodology that responds to shifting climatic conditions.

Insurance markets are acutely aware of their role in supporting innovation

The renewable and clean energy market has never been so technically demanding with complex, integrated technologies and revenue streams becoming standard as the world continues to race towards electrification.

"A softening and over capitalized market with capacity struggling to identify differentiators is a good environment for innovation in product and service. It is welcoming that

we are engaging with many carriers who are seeking to better understand clients wider risk transfer requirements, and focusing on delivering more appropriate, complex, tailored, innovative solutions separate to price differentiators in a softening market. Product innovation has been relatively static for the last five to six years through the technical hardening of the market and is highly welcomed."
Steven Munday, Global Renewables Energy Leader, Willis Natural Resources.

Insurers are seeking to differentiate their brand by focusing on the wider global energy transition opportunity, pooling expertise from more traditional conventional, oil and gas, and renewable energy disciplines to present hybrid, energy x solutions. While low-carbon technologies evolve, there is a noticeable widening of underwriting briefs, upskilling of underwriters, and insurers creating dedicated, renewable, low-carbon or energy transitions teams and disciplines in the London and global insurance centers.

Looking ahead, there will be additional pressures on available open market capacity. Many of the leading global brokers are benefiting from market facilities which provide automatic supporting capacity to leading market terms within pre-agreed wide scopes across multiple product lines or classes. Mutuals are also on the rise, such as Everen (Forever Energy), who are increasingly supporting their clients involved in the energy transition, together with pure renewable energy clients.[10]

Gard, the world's largest marine insurer in both Protection and Indemnity (P&I) and Hull and Machinery (H&M), completed on its $163 million (Nkr 1.74 billion) acquisition of the marine and energy portfolio of Denmark's Codan from Alm[9], supporting diversification from P&I and significantly strengthening their position as a leader in the renewable energy sector. A significant portion of the acquired portfolio consists of offshore wind projects in Denmark, Europe and globally. Norwegian Hull Club have created their very successful vehicle (NIORD) to focus on innovative and dedicated offshore wind capacity and solutions, enabling endless energy.

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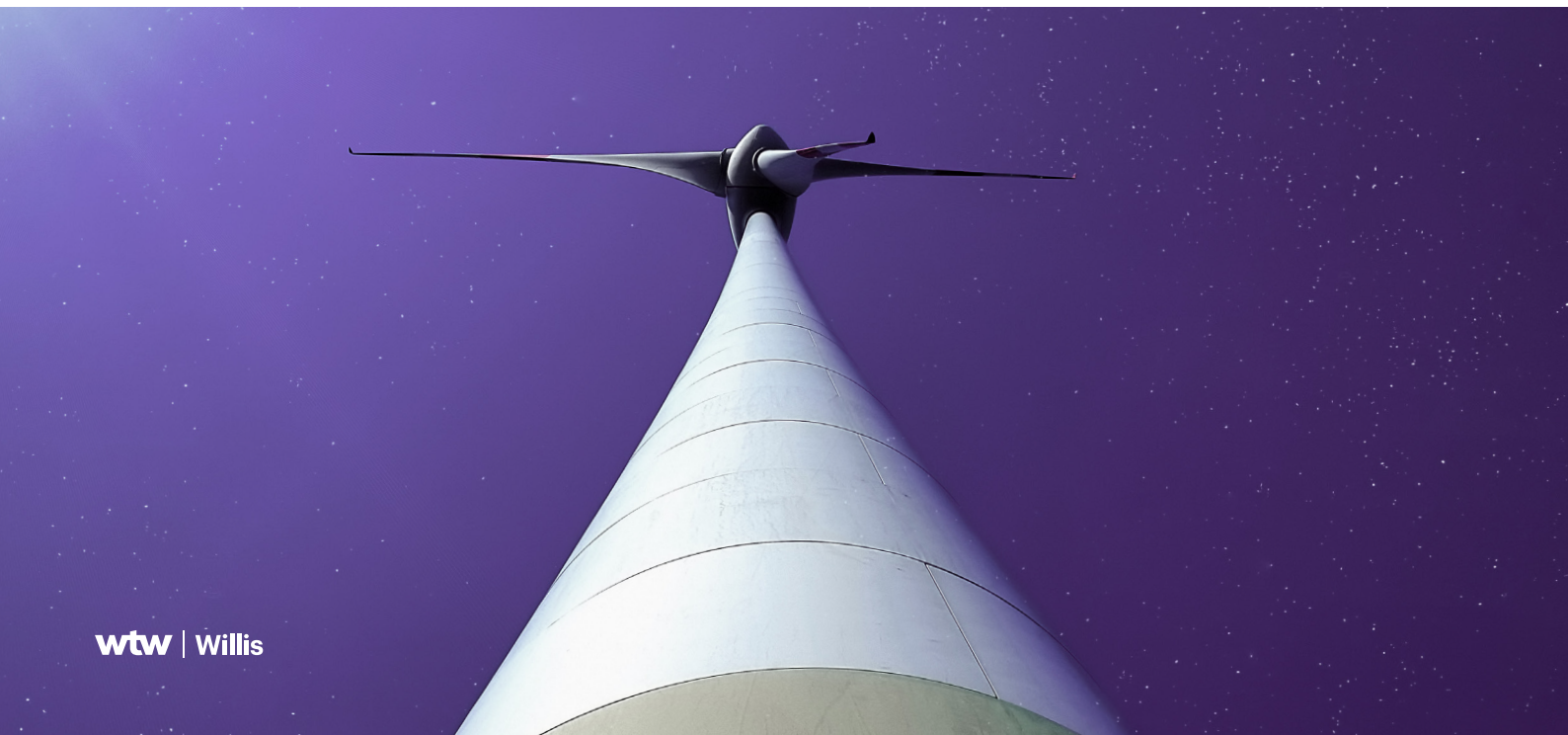
How insurers and renewable energy companies can move forward with confidence

Innovation is gaining momentum, not just for clean energy technologies, but the risk solutions and insurance products that support their development and deployment.

Against a backdrop of natural catastrophe volatility, key solutions can help insurers and clients move forward with clarity and confidence:

Climate peril diagnostic: WTW's Global Peril Diagnostic delivers the analytical insight to help answer the critical natural catastrophe, climate and other global peril questions: Which locations are most at risk to which hazards? What's the highest risk by operational hierarchy or geographical region? Which global peril factors should be of most concern to your business? Are there hazard and exposure hotspots across your portfolio? Would new locations be exposed to global hazards and what would that mean under different loss scenarios? The tool also predicts impact zones and areas with probable exposures, and offers a customized risk view on global perils tailored to your business.



Parametric insurance: With volatility in the natural catastrophe markets, parametric solutions remain in sharp focus as a solution. Business interruption costs associated with specific events (e.g. windstorm, earthquake, flood) are not covered by traditional insurance unless there is physical damage, but parametric insurance responds to objectively defined characteristics and claims are triggered if the actual measured physical characteristics of the event exceed pre-agreed thresholds. Parametric insurance is a critical tool for risk leaders, filling protection gaps, de-risking lender financing and building a more stable foundation to make informed financial decisions.

The global renewable energy insurance market is advancing data and analytics, integrating climate risk models, and enhancing risk management tools to better assess and price risks associated with renewable energy projects. With more insurance capacity entering the market as insurers seek to capture growth in renewables and replace premium from shrinking fossil fuel insurance lines; softer pricing, broader terms and lower deductibles in some segments are headlines for 2025.

Specialist brokers and underwriters with deep expertise in renewable technologies will be a defining factor in bringing data-driven insights to life to drive meaningful change.

Find out how to build resilience in a soft market to prepare for changing market conditions in the future.

Contact:

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Major renewable energy insurance market trends are evolving in key regions

Asia

Sam Liu
Head of Renewable Energy, Willis Natural Resources, Asia

Asia was the primary driver of the 140% global growth of renewable capacity over the past decade, contributing 421.5GW of new capacity — 72% of the global total — and bringing its cumulative capacity to 2,382GW, or 53.6% of the global share.[1]

Asia continues to lead global renewable energy growth, fueled by rising energy demand, ambitious net-zero targets and the increasing cost-competitiveness of clean technologies. Countries such as China, India, Japan, South Korea and members of the Association of Southeast Asian Nations (ASEAN) are accelerating the deployment of solar, wind, hydro and emerging technologies — including hybrid installations that integrate BESS and Floating Solar Photovoltaics (FPV).

Looking ahead, floating solar is expected to play an increasingly important role in expanding Asia's renewable capacity. With technological innovation, supportive policy frameworks, and competing challenges for land use, optimization of FPV systems is gaining significant traction. In particular, ASEAN markets are seeing heightened interest, with developers actively participating in government tenders, indicating strong growth potential.

However, FPV projects face technical challenges, especially regarding floater design and the resiliency of anchoring and mooring systems — particularly in sites exposed to natural catastrophes. Site selection is therefore critical, as it directly impacts the overall system design. Extensive technical studies are required to gather accurate environmental data and ensure the project is engineered for long-term performance and durability. From a risk transfer perspective, there is a limited appetite and pool of quoting lead insurers,

though follow capacity is gradually expanding. However, this capacity is typically contingent upon a detailed engineering assessment of the project's technical design and its risk mitigation strategies, not all projects will sufficiently qualify for broadform coverage to a level which is required by commercial lenders.

In general, while new market entrants have increased overall capacity and enhanced competitiveness in the insurance sector, insurers remain highly technical and cautious — particularly when underwriting emerging technologies such as BESS, hydrogen, FPV and larger wind turbine models. Capacity remains constrained by factors such as natural catastrophe exposures and the accumulation of insured assets within specific regions, which continue to influence underwriting appetite and terms.

China

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According to the report of Global Wind Energy Council (GWEC), by the end of 2024, the total offshore wind power installed capacity grid-connected in China accounted for 51.3% of the global market share.[2]

Currently, most of China's installed offshore wind projects are within the area of 30km offshore, but now, the world's first deep water wind power platform to supply power to offshore oil and gas fields by a 5km subsea cable operates at a 136km distance from the coast of Wenchang, Hainan, and 120m water depth.[3]

To adapt to deep and far locations, floating-type and large-scale turbines are a growing trend. But new technologies bring new risks. In China's offshore wind power projects, the insurance losses during the construction period are still mainly caused by damage to turbine blades and subsea cables, while insurance losses during the operational period are mainly caused by damage to subsea cables. Claims due to severe weather risk accounted for a relatively small number of claims but resulted in huge claims amount. In total, balance of claims paid during the construction period and those in operational period account for 60% and 40% respectively.

At present, more than 10 Chinese insurers can provide coverage for offshore wind projects. Despite the Chinese domestic market being consistently soft through the recent hard technical market increases internationally, clients continue to enjoy positive insurance premium and terms and conditions in China. Most Chinese insurance companies are still feeling comfortable that they have delivered underwriting profits in offshore wind risks over the last 10 years.

For deep water offshore wind projects, if fixed foundation wind turbine towers are used, the Chinese domestic insurance market intends to initially use a similar approach to nearshore, with likely increases in premium rates and deductibles. At present, there is probably sufficient insurance capacity from local domestic markets, but if floating wind turbines are widely deployed, the Chinese domestic market would lack capacity. When floating turbine projects are scaled up, Chinese domestic insurers will be looking for strong facultative reinsurance support or specified treaty reinsurance.

Australia

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Australia's renewable energy sector continues to grow rapidly, with 7.5GW of renewable energy capacity being added, including 4.3GW from large-scale power stations and 3.2GW from small-scale rooftop solar installations.[4] However, the insurance market for these assets is under pressure due to mounting claims, extreme weather events and ever evolving technology risks.

The Australian property insurance market remains cautiously optimistic. While capacity is available for well-managed and technically-sound assets, insurers are increasingly selective, particularly for:

- Older solar farms with poor operations and maintenance (O&M) practices
- Wind assets in bushfire or cyclone-prone areas
- BESS facilities with limited thermal controls or inadequate spacing

Despite hardening in prior years, capacity has improved due to increased appetite from global markets.

But nat cat exposures remain an outlier, where (re)insurer appetite is flat or declining. 2023–2024 losses due to hailstorms in Victoria and cyclone impacts in Queensland have made these perils central to underwriting. Risk modeling, particularly around flood, hail and bushfire and mitigation strategies (e.g., hail-resistant modules and vegetation management) are now minimum requirements. There will also be increased scrutiny of site selection, along with the civil works design to assess flood resilience. Insurers are also focusing on their particular accumulations in any one area or region and are being more selective in deploying capacity.

During the operational phase of any renewable project, insurers are emphasizing predictive maintenance, remote monitoring and robust contractor management. Projects with weaker O&M protocols or gaps in documentation can face higher rates or restricted cover at renewal.

Premiums are likely to remain risk-based rather than experiencing uniform market price trends.

Projects demonstrating strong design, maintenance and resilience will benefit from more favourable terms. Insurers are utilizing the use of satellite risk mapping, site-specific climate modeling and ESG scores in their underwriting, so developers should be contacting their broker to understand this exposure at their future sites.

Australia continues to be at the top of the leaderboard for renewable energy investment, global property insurance availability and affordability will hinge on project-level risk quality. Stakeholders should engage brokers early, invest in risk mitigation and embrace data-driven risk transparency to navigate a more technical and disciplined insurance landscape.

Latin America

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Over the past decade, renewable energy in Latin America has made remarkable progress, driven by the region's abundant natural resources and growing interest from both domestic and international investors. Latin America has earned recognition for its progress and ongoing challenges, as highlighted in the 2024 Energy Transition Index published by the World Economic Forum (WEF).[5] Countries such as Brazil and Chile rank among the top 20 globally, while Costa Rica, Uruguay, Colombia, Paraguay, El Salvador and Peru also appear in the top 50 — reflecting a notable increase in renewable energy capacity.

Our 2025 Global Clean Energy Survey further reveals how companies in the natural resources sector are navigating the shift to clean energy, significantly increasing investments in technologies and infrastructure.[6] Key focus areas include solar and wind energy, green hydrogen, carbon capture and BESS. However, these technologies bring with them emerging risks such as supply chain disruptions, geopolitical tensions, climate variability, regulatory uncertainties, construction delays and overruns, cybersecurity threats, physical and transition climate risks, and grid limitations.

The Latin American markets (especially centered in Miami) are becoming increasingly supportive of renewable energy risks, frequently leading or sitting on same term slips with wider international carriers. The hardening of the domestic and regional markets over the last few years, when considered in the context of falling international rates, is providing greater parity in terms and conditions than we have seen for many years.

North America

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In North America, the Electric Reliability Council of Texas (ERCOT) and the Pennsylvania-New Jersey-Maryland Interconnection (PJM) are experiencing unprecedented growth in electricity demand, primarily due to data center expansion. This expansion will put tremendous pressure on infrastructure, including new and existing assets. Approximately $15 billion dollars in transmission investments are required to meet new demand by 2030.[7] This expansion will be met with regulatory and permitting hurdles, which pose challenges in both power generation and infrastructure upgrades to meet forecasted demands.

Data centers continue to be in focus and a growing demand across tech telecom, construction and natural resources industries. The International Data Corporation (IDC) expects global datacenter electricity consumption to more than double between 2023 and 2028 with a five-year Compound Annual Growth Rate (CAGR) of 19.5% and reaching 857 Terawatt hours (TWh) in 2028.[8] Regional hot spots in Pennsylvania-New Jersey-Maryland (PMJ) and Electric Reliability Council of Texas, Inc. (ERCOT) are showing prime locations for development due to favorable infrastructure, available and reliable energy sources, and an easier regulatory environment.

A number of key factors are driving uncertainty for insurance markets. Property insurance trends continued to see relief in the early stages of 2025, with renewal rates trending towards double-digit savings while new projects are seeing a five-year low in rates. Due to the strong growth of data center developers, new insurance capacity is introduced to the market every quarter. WTW continues to stay ahead of this concern with the implementation of WTW's Tariff Guard, our proprietary tariff endorsement, which seeks to add additional coverage for those impacted by tariff related expenses.

Casualty rates continue to climb in the renewable energy sector due to higher-than-expected nuclear verdicts driving social inflation and continued pressures from climate change. Independent power producers are slightly insulated from the broader casualty market, with rates remaining flat year over year. Any exposure to wildfire, heavy auto fleets or residential exposures continues to see rate pressures into 2025.

By proactively addressing infrastructure needs, regulatory frameworks and insurance considerations, renewable energy power producers can remain resilient through a challenging and delicate time in North America.

CEEMEA

Fadi Abdul Aziz
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The CEEMEA (Central and Eastern Europe, Middle East and Africa) reinsurance market features a complex mix of international and domestic markets, and managing general agents (MGAs).

International markets bring impressive capacity and global expertise, enabling them to underwrite large and diverse renewable energy projects. These capacities can be accessed at regional offices, enabling a localized approach to underwriting. Domestic markets offer localized knowledge and a tailored approach to regional risks. MGAs bridge the gap between two, providing specialized underwriting services and focused expertise, often with the agility to respond quickly to market changes.

Regional carriers offer a wide geographical scope, including the Middle East, Africa, Asia, Central and Eastern Europe and Latin America. This broad scope, which is further segmented into maximum capacity allocation for each individual renewable segment, presents unique challenges, but more importantly opportunities to diversify the risk profile of the portfolio. The market appetite is growing steadily, with existing players increasing their appetite and new players entering the market through mergers and acquisitions or establishment of regional branches.

The diversification across various renewable segments highlights the market's adaptability to evolving energy needs. Solar PV risks have the highest total available maximum capacity, reflecting strong market confidence in the sector. This is followed closely by onshore wind and BESS risks, indicating their critical roles in renewable energy portfolios. Hydro and biomass also have substantial market appetite, reinforcing their importance in the mix. Appetite for emerging technologies such as green hydrogen and floating solar is gaining momentum, with significant capacities available.

As traditional energy operators continue to diversify into renewable energy projects in the region, CEEMEA remains a popular destination for insurance capital deployment. The region features large and complex risks that invite attractive premium levels and historically carry less risk from an asset age and natural catastrophe perspectives compared to other regions. Following a period of loss activity, however, underwriters are applying more scrutiny in their reviews, especially for technologies that have proven to be challenging to erect or operate.

Nordics

Henrik Brune
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Driven by a renewed political commitment and well-established clean energy infrastructure, the Nordic region remains a benchmark for sustainable energy development.

In Sweden, biofuels and waste have become the country's largest renewable source, and BESS is gaining momentum across the region. Carbon capture and storage (CCS) is also advancing, with flagship projects like Northern Lights in Norway and Greensand in Denmark scaling up. The government in Norway has relaunched the tender process for Utsira Nord (floating wind),[9] while Sørlige Nordsjø II (bottom-fixed) was awarded in March of 2024, totaling 3GW of new offshore wind development.[10] Similarly, Denmark is correcting course after last year's failed auction by launching a new 3GW offshore wind tender later this year.[11]

The insurance landscape in the Nordic region is undergoing major developments. A Norwegian marine insurer giant has completed an acquisition a key insurer in the global renewable energy market,[12] and the addition of a conservative marine- and offshore-focused insurer to onshore business is an indication that the renewable energy market is shifting drastically. Other P&I clubs will be assessing their business model and treaties to decide if they can compete across exposures.

Meanwhile, some major Nordic-based Property and Casualty (P&C) insurers are de-risking their portfolios, including their renewable energy books. Capacity is opening up for other markets and we are seeing more co-insurance policies and smaller line-sizes, which is giving access and capacity to additional markets, and inviting new carriers to enter or expand in the Nordics. This is healthy for the region and for handling larger claims.

Looking ahead, the outlook is increasingly positive, especially in offshore wind, where strong industry engagement is driving renewed optimism across the Nordic market. As industrial policy, innovation and investments improve, the region is set for an exciting year of progress, driving new opportunities within the evolving energy landscape.

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Claims across the renewable sector: Key trends to watch in 2025

Notwithstanding the major geopolitical and economic pressures faced by the renewable energy sector, the growing size, scale and output of projects and technology continue to challenge the (re)insurance market.

Key takeaways:

- Offshore and onshore wind turbines are increasing in size, and the risk of damage and financial exposures are rising in parallel with increasingly competitive and changeable global manufacturing considerations
- BESS, floating offshore wind, solar and subsea cables continue to be under the spotlight after material incidents
- Isolated incidents of machinery breakdown and natural catastrophes highlight the importance of manufacturing and engineering modeling and analytics to identify vulnerabilities and develop response plans

Offshore wind: Turbines and subsea cables are under the spotlight

Bigger blades create bigger losses

In the last 12 months, the latest generation of supersize turbines have caused blade failure incidents across Europe and offshore U.S.. As the scale and output of blades and turbines increases, the costs associated with projects also increases in parallel. To date, there have been three loss events on the same type of blade.[1] Very large blades often fail due to a combination of fatigue and extreme loads. Full-scale fatigue tests often fail to replicate the most extreme deflection and forces that blades can be exposed to in real-world conditions, and these design-related risks are coming under the spotlight for insurers. For renewable energy companies, aside from the loss of the asset under a property policy, there will also be associated losses due to overrunning project delays that are often uninsured, directly impacting revenue flow and by extension, debt servicing and relationships with key stakeholders.

Take action: Project owners and contractors will need to address structural failures during the design and testing phases. Working collaboratively with sector-focused risk engineers will provide insight to how far these risks can be covered by construction all risk and operational policies, and how others can be controlled.

Subsea cables are a point of failure

Around 83% of all offshore-wind-related financial losses and insurance claims are attributed to power cable failures.[2] The frequency and cause of losses on export and inter-array cables have been a headline trend for the sector, yet failures continue, resulting in significant insured and uninsured contingent losses for wind farm operators.

Take action: Conduct risk engineering studies to identify vulnerabilities, implement necessary risk controls and model potential loss scenarios to prepare for any impacts. It is important to consider buying critical and long-lead spares at an early stage to help mitigate against potential losses and reduce downtime. This is seen very positively by the insurance market and in prevailing market conditions, frequently results in improved or preferential terms and conditions.

Out of the blue losses: Risks at sea

Meanwhile, other hazards continue to impact offshore wind projects. In April 2025, a supply ship struck the base of an offshore wind turbine in the North Sea.[3] While

these incidents remain relatively rare, they reinforce the need for reliable monitoring systems to alert operators of potential hazards.

Take action: Risk management is one key component of recovery after an incident of damage, as coverage under property damage and business interruption will provide the financial support to reinstate assets and operations. But importantly, running models such as supply chain diagnostics can help project managers ensure the right level of cover protects critical links in the value chain. Considering contingency plans is another component of a robust response strategy. Other strategies – such as asset sharing agreements with priority calling on assets – mean that replacements can be available, faster. Reducing downtime while root-cause analysis takes place during the claims process will help projects reinstate operations and revenue flow.

Onshore: Solar and wind projects remain exposed to extreme weather

Global insured losses now regularly exceed $140 billion, marking the fifth consecutive year above $100 billion.[4]

Meanwhile, the protection gap remained substantial, with total economic damages exceeding $350 billion,[5] highlighting the inadequacy in resilience to climate-related risks.

These extreme weather events continue to impact onshore solar and wind projects, with recent major losses including:

- Extreme weather losses[6] in the Middle East, causing extensive damage and significant losses for solar PV and concentrated solar power assets
- Wildfires in the U.S. damaging conventional solar assets
- Severe U.S. convective storms impacting solar assets
- Australian windstorm damages to wind assets
- Hail damage[7] has been an issue globally for solar PV projects

Take action: Outpace climate risk with a powerful combination of risk consulting expertise, renewable-sector specialism and advanced climate data analytics. Renewable energy companies that invest in climate-related diagnostics

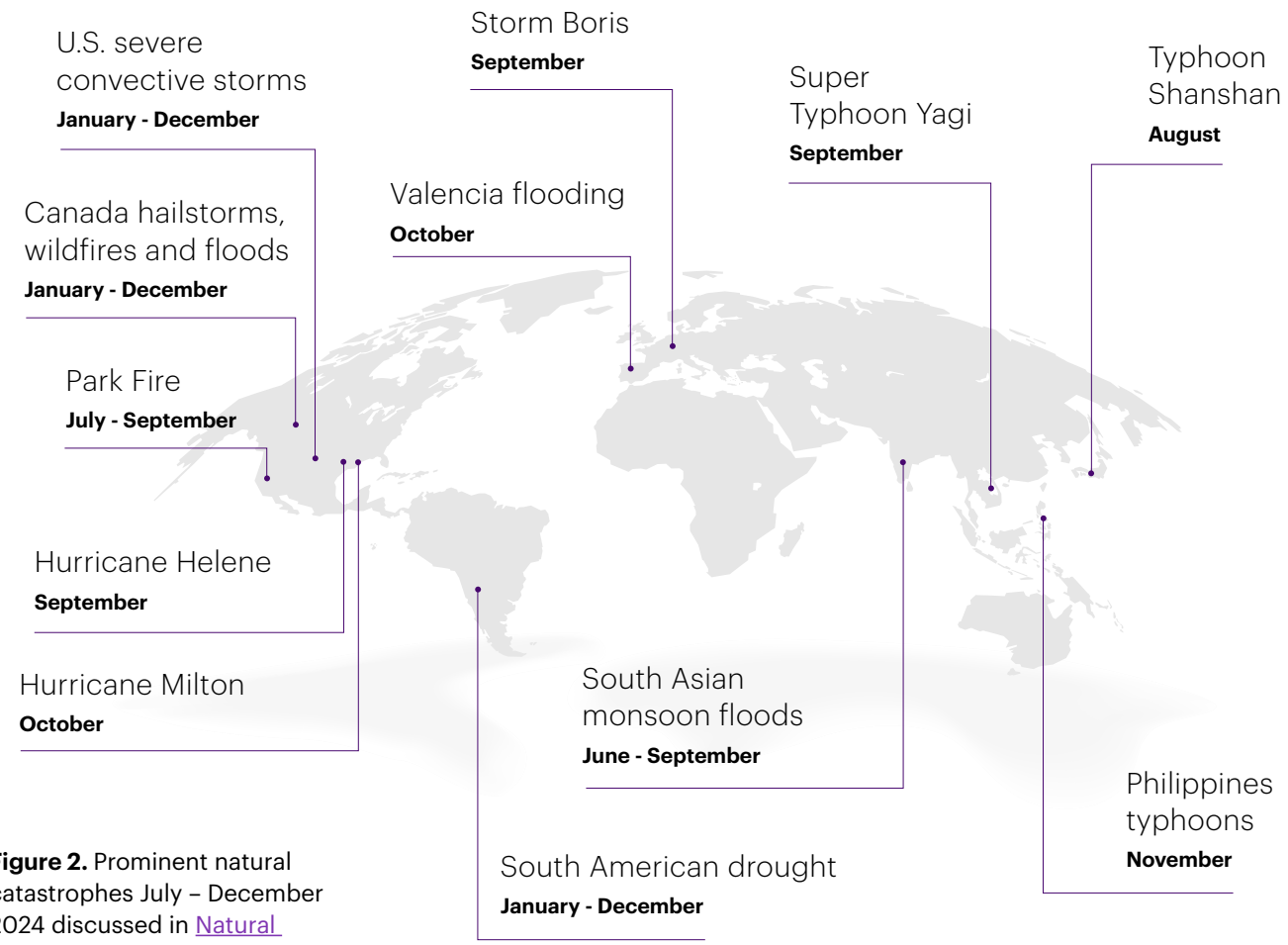

Figure 2. Prominent natural catastrophes July – December 2024 discussed in Natural Catastrophe Review H2 2024

and apply these data into risk management strategies will be more resilient to the short- and long-term impacts on revenue flow. Armed with data-driven insights, risk leaders can fully understand climate-driven losses and financial value at risk to make informed decisions.

Scaling turbine sizes has scaled technology failures

Similarly to offshore turbine failures, there have been several high-profile onshore turbine failures that have led to major insurance claims. Design flaws, defective components from sub-contractors, lack of clear standardizations and guidance provided to the Engineering Procurement Contractors (EPCs) during installation and test and commissioning phases all come to the fore as turbine sizes scale up from 2MW and 3MW turbines to 4-6MW turbines. This has led to an increased number of outages, repair costs and business interruption claims.

Take action: Increase due diligence at the procurement stage, coupled with early engagement with your insurance advisors and underwriters, to get a better view on what would be reasonably commercially available from the insurance industry in terms of coverage and pricing, thereby reducing challenges further down the line.

Layout design is impacting insurer ratings for BESS

Warehouse BESS projects are seeing a high level of negativity. A 2024 report found that 50% of BESS failures occur within the first two years of operation, and failures have[8]. The recent BESS events at Moss Landing[9] in the U.S. and Tilbury in the U.K. have again focused insurers on the risks associated with these technologies. Insurers are assessing the design layout with increasing scrutiny, alongside a renewed focus on chemistry type and improving contractual warranty provisions that may be in place.

Take action: Early engagement with insurance advisors and insurers' engineers at the site outline planning stage can help BESS projects operators reflect best practice guidance in the site layout and ensure they optimize megawatts per m^2. The site layout has a significant impact on insurers' probable maximum loss (PML) or worst-case scenario loss at site. This is increasingly important as the scale and footprint of single-site BESS increase.

Claims trends are indicative of how renewable energy companies need to be scrutinizing their risk resilience in 2025. Insurance markets are responding to these trends, and the role of the broker will be critical in supporting renewable energy companies to provide robust risk data and analytics to help insurance markets make informed decisions about cost and coverage.

Find out how to optimize your risk and insurance strategy as your projects face new and changing insurance market dynamics.

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Weird and wonderful: The next wave of renewable energy innovation

As global pressures to decarbonize mounts, the renewable energy sector continues to push boundaries. The sector is going beyond established technologies such as solar, wind and biofuels, with increasingly inventive solutions that blur the lines between science fiction and scalable infrastructure.

Insurers supporting their client's diversification must be prepared to engage with these emerging technologies. With their novelty, will come insurability challenges, but as confidence builds and experience generates reliable performance data, insurers will be able to consider broader levels of risk transfer.

Key takeaways:

- Innovation continues at pace across the renewables sector, with kinetic infrastructure, solar-integrated materials, nuclear fusion and gravity-based storage all developing as potential technologies
- The insurance market will need to evolve in parallel to enable safe experimentation and scalable deployment in this fast-moving sector
- For technology developers, building a robust risk management strategy will need to account for agility as the risks associated with new technologies come to the fore

In recent months and years, new and exciting renewable energy innovation has accelerated across the globe.

Road-powered charging could accelerate growth in electric vehicles

Sweden has repurposed an existing black tarmac road to a permanent electrified road – the first of its kind in the world.[1] On this road, cars and trucks can recharge while driving. Considering that the required energy density (related to size/weight) of batteries is a barrier to commercial trucks being electrically powered, this innovation is a major breakthrough.

Charging on-the-go means vehicles can travel for longer distances with smaller batteries without needing to wait at charging stations. E-roads eliminate the key challenges of electric vehicles, such as charge time and distance limitation, which could make electric vehicles a more feasible option for drivers.

In Sweden, charging technology that powers electrified roads can take two primary forms:

1. **Conductive charging:** This method requires the vehicle to make physical contact with an electrified rail or overhead wire. For example, the eRoad Arlanda pilot project near Stockholm has a two-kilometre rail that charges trucks using a retractable arm.[2] When a truck drives over the rail, the arm lowers and connects, providing up to 200kW of power. This is enough to support long-distance freight transport. While this method is energy-efficient, it needs precise alignment and special lanes, including vehicle compatibility with other countries.

2. **Inductive charging:** This system uses coils placed under the road surface to create electromagnetic fields. Vehicles with receiver coils can turn this energy into electricity, charging their batteries without wires. Sweden tested this technology on Gotland Island, where electric buses and trucks charged while driving along a 2.5-mile section[3]. Although inductive charging reduces wear and tear, it provides less power and faces issues with energy loss and the same alignment and compatibility issues as conductive charging.

The challenge: Insurance markets are being pressured to build renewable energy into their portfolios, but prototypicality of innovative technologies such as road-powered charging or 'e-roads' is a major challenge. The susceptibility to damage is largely unknown, and property markets will require robust risk data to make informed decisions about building these risks into portfolios.

Piezoelectric roadways could move the dial on energy usage

Research from Rutgers CAIT explores the use of piezoelectric materials to generate electricity from roadways.[4] These roadways harness the impact and stress from traffic alongside other sources of energy, such as solar, thermal and geothermal, to create a sustainable infrastructure model.

Similarly, kinetic pavements convert footsteps into electrical energy. These systems are ideal for stadiums, transit hubs, or high-footfall areas and offer off-grid power for lighting, signage, or small electronics.

The challenge: Though output remains modest, insurers must assess risks related to wear-and-tear, water ingress and injury liability on modified surfaces.

Gravity storage systems can take on the heavy lifting

Emerging gravity storage systems lift heavy blocks (or trains on inclined tracks) during times of excess power and release them to generate electricity when needed. These systems, such as those trialed in Switzerland and the U.S., offer mechanical, long-duration storage without chemical degradation.

Grid-scale energy storage solutions are designed to capture the kinetic energy produced by lifting and dropping masses. These masses are usually made from locally sourced or recycled materials to support sustainability. Gravity does the work as lowering weights releases stored energy.

The challenge: A major challenge is the loss of energy as byproducts during conversions to gravitational pull and back. Losses including heat dissipation and mechanical friction can lead to efficiencies below 70%,

and geographical constraints can also limit scalability.[5] With high initial costs and environmental impacts from construction and material sourcing, getting projects off the ground and managing risks are barriers to growth for gravity storage technologies.

Bladder-based ocean energy moves with the tides

On the marine frontier, engineers are trialing inflatable 'bladder' devices that float under the surface and mimic the movement of sea creatures. These flexible structures absorb wave energy as they contract and expand, converting kinetic motion into hydraulic power. Unlike rigid tidal turbines, these devices are less vulnerable to storm damage and marine corrosion.

The challenge: Structural integrity and energy yield remain key concerns for insurers and investors. Unknown risks to property damage and associated environmental damage need to be carefully modeled and mitigated.

Fungi-powered bioenergy is shining a light on micro-energy solutions

Researchers are exploring the bioelectric properties of mycelium, the root network of fungi. Some species naturally produce small voltages as they decompose organic matter. Biotech start-up companies are experimenting with mycelium-based bio-batteries that could offer low-impact, biodegradable power sources for sensors and small electronics. While still in its infancy, this area exemplifies the creative thinking behind sustainable micro-energy solutions.

The challenge: Aside from technical challenges, proprietary needs and scientific knowledge gaps, bioelectric solutions are perceived as prototypical by the insurance markets, and the technology will need to prove to be commercially scalable with robust engineering and analytical models before they can be built into portfolios.

Solar windows are a bright idea for urban areas

Using the concept of building-integrated photovoltaics (BIPV), solar windows are windows with solar panels that absorb ultraviolet and infrared light and convert them into electricity. These dual-purpose materials reduce building energy demand and could be a solution in urban environments. According to a leading manufacturer, solar windows are typically 30% more expensive than conventional windows[6]. But this is compensated considering the yearly reduction in utility bills and the decrease in global emissions.

The challenge: Solar windows present novel risks relating to visibility distortion, performance degradation and integration into existing facades.

Magnitudes of innovation in quick-concept fission and China's artificial sun

Alongside modular fission reactors, global focus is intensifying on nuclear fusion. In its quest to make clean, limitless energy a reality, China's artificial sun project has achieved record temperatures, which are five-times hotter than the core of the sun.[7]

The challenge: While commercial viability is years away, fusion technology brings new frontiers of risk, including high-energy magnetic confinement, tritium handling and long-term containment planning. Insurers will need to prepare for entirely new frameworks around liability, regulation and performance coverages.

What innovation means for the renewable energy insurance market

As renewable energy technologies evolve rapidly, the insurance market needs to keep pace. Traditional underwriting frameworks may fall short when applied to unproven systems with limited operational history, complex interdependencies, or hybrid functions (e.g. energy generation and structural utility). Insurers need to invest in technical expertise, flexible policy structures, and collaborative risk modeling to assess performance uncertainty, liability pathways, cyber exposure and regulatory alignment. Risk engineering will have a major role in helping insurers identify which elements of new technology projects are entirely prototypical, and which elements have roots in existing and known risks. With these

in-depth insights, both markets and renewable energy companies will be in a position to move forward with a shared understanding for sound decision-making. Proactive engagement with innovators, regulators and clients will be essential to ensure that insurance products are not only fit for purpose, but also enable safe experimentation and scalable deployment in this fast-moving sector.

Opportunities in renewable energy technologies are there for the taking

As these weird and wonderful technologies move from concept to pilot phase, they bring with them a host of challenges: mechanical reliability; long-term degradation; unpredictable yield; and lack of performance benchmarks. All these challenges complicate traditional actuarial models. But risk also brings opportunity. Innovations in renewable energy technologies represent exciting new classes of insurable assets for early movers in the renewable energy insurance market.

For insurers, the message is clear. The future of renewable energy won't just be wind and sun, it will be the road, the sea, the soil beneath us and even the fungi underfoot.

Being an early mover will be high risk but could be high reward. For forward-thinking renewable energy companies, a robust risk management strategy will need to account for agility as the risks associated with new technologies come to the fore, and insurance market dynamics respond. The role of a broker will be critical in enabling insurers to understand the risks, backed by data, and collaborate on building solutions to drive the clean energy transition forward.

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Space-based solar power: The next frontier in renewable risk

As civilization continues to innovate clean and renewable technologies, resources on Earth are depleting. Global energy demand forecast projections continue to be other worldly, and technology developers are looking beyond the confines of what's beneath our feet into the stars for answers to our energy supply quandary.

AI may be the new space race, but if you look up at the night sky on any clear evening, it won't be long before you will see with the naked eye some of the 10,000+ satellites which orbit our tiny plant today. Space is quickly becoming more than just the final frontier, it may offer humanity's next big energy source – space-based solar power (SBSP). Once a sci-fi movie fantasy, discussions are now a reality and the technology is gaining traction through initiatives like the ESA's SOLARIS program[1] and the UK's Space Solar.[2] The concept is bold: collect solar radiation in orbit, then beam it back down to the surface of the Earth. With twenty-four-seven, three-six-five solar exposure, without the limitations of traditional terrestrial solar PV like adverse weather or atmospheric interruption, SBSP could theoretically deliver efficiency levels in excess of 90%, compared to 20-40%.

Insurance is at the core of feasibility

SBSP isn't only ambitious, its risk intensive. From the point of launch, all the way through to energy transmission and delivery, insurance will be central to making these projects feasible and investable. The space environment presents some alien challenges. The framework for risk transfer and insurance of these projects already exists in traditional insurance markets, but will require an open minded, hybridized and adaptive approach.

Key risk considerations:

- **Launch and deployment:** Physical loss, failure to reach orbit - core areas for existing space insurers
- **Space hazards:** Meteoroids, collisions, radiation
- **Transmission risks:** Liability risk around beaming power to Earth via intense microwaves/laser
- **Cyber security:** Remote, sensitive systems will be vulnerable to interference or malicious attack
- **Orbital debris liability:** A fast-evolving risk with uncertain attribution and liability frameworks

For known technologies, these risks are covered by conventional lines of insurance – renewable energy, space, liability and cyber insurance – but applying known risks in prototypical ways will demand collaboration and innovation from insurers, risk engineers, brokers and technology developers.

Structuring cover for SBSP

Like any new technology, SBSP will require a tailored approach to designing and deploying policies. Possible structures will include:

- End-to-end policies: spanning launch, deployment, and operation phases (adapting frameworks like WTW's Global Renewable Lifecycle policy)
- Project finance aligned structuring to support bankability
- Parametric solutions for output or transmission interruption
- Equity or captive supportive models for risk sharing in early-stage development
- Transmission liability cover tailored for novel microwave or laser systems

"In the early developmental stages, it is unlikely that space insurers will be willing to provide insurance for anything other than the launch vehicle flight phase of the project following a run of major losses in recent years that have significantly outpaced its premium base and caused an exodus of capacity." Janette Sunshine ACII, Executive Director, InSpace.

If approached creatively and collaboratively, insurance will need to be a gateway to this next phase of clean and renewable energy innovation.

The rapid maturity of other emerging technologies like offshore wind, BESS and hydrogen has shown that where insurance leads, capital follows. Early engagement from risk advisors helped shaped the technical specs, project financing frameworks and understandings of best practice. The same playbook applies here.

SBSP is bold, technologically intricate and, for now, very much a leap of faith that needs to be heavily developed out of its infancy. But this was the case with all of history's greatest energy transitions. Insurers and brokers who engage early and shape the narrative, won't just be protectors of these ventures, but propellants of them.

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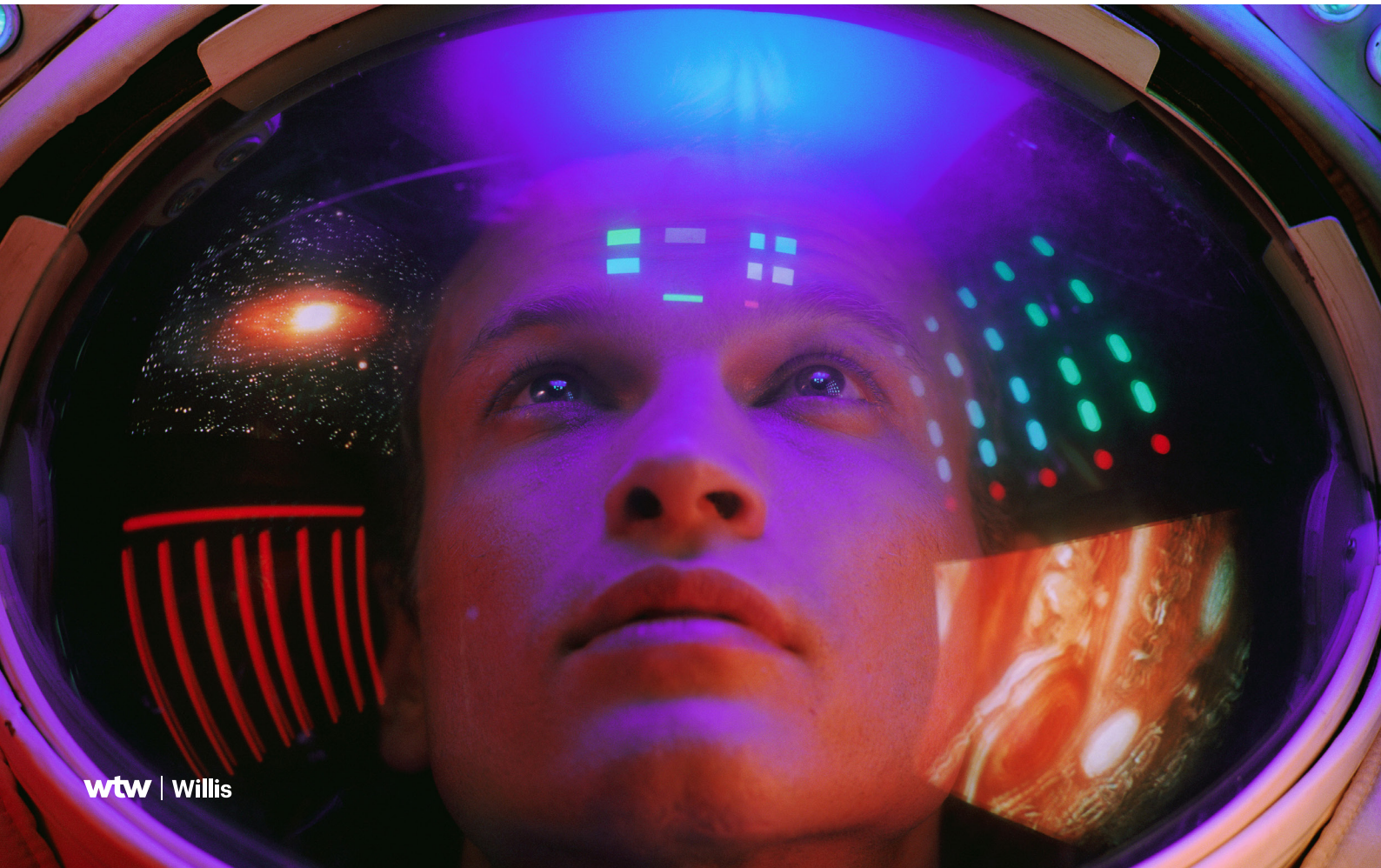

How circular economy models can help renewable energy companies secure a competitive advantage

The renewable energy sector largely operates in a linear economy with a take-make-dispose model. But the supply of resources is finite, and if left unchanged, will enter a state of resource depletion.

Key takeaways:

- Circular economy models can help to lower costs, build resilience and unlock commercial opportunities
- Environmental, social and governance (ESG) obligations remain a major factor in stakeholder decision-making. Circular economies can uphold obligations and enhance performance
- Challenges exist, but weighing the potential value of circular economy models can provide a strategic advantage

With the average lifespan of wind turbines and solar panels not exceeding 30 years, the renewable energy sector needs to rethink the current linear economy to ensure that there are viable options for de-commissioning sites and reusing and recycling core materials.

What is a circular economy? Designed to keep resources in use for as long as possible, circular economy models aim to eliminate waste and maximize natural resources by designing systems where materials are reused, recycled or regenerated. Circular economy models combat the long-term limitations of linear models where products are designed for singular use and disposed into landfill, and instead provide a more sustainable long-term operating model for the business and limit the impact to the environment.

Solar, wind and BESS are early movers

The lifecycle of solar and wind technologies is contributing to the linear economy as the sector is not designed for reusing old, obsolete equipment. But while there is a limited amount of recyclable renewable energy technology, this is improving. Specialized companies are emerging. Advancements in science and technology have enabled

recycling of some solar cells to produce new cells, and both solar and wind components have valuable materials that can be extracted like silicon, silver and copper.

Raw materials can also be harvested from batteries. These recovered materials can be fed back into new battery production, reducing the demand for virgin raw materials and mitigating the environmental impacts of mining. BESS developers are also exploring how batteries that no longer meet the high-performance demands of electric vehicles can be given a second life in less demanding energy storage roles. This reuse reduces waste, prevents contamination from battery disposal and delays the need for new battery production, supporting a more sustainable energy system and illustrating a practical circular economy implementation.

The European Union's Battery Regulation, effective from 2024[1], is accelerating circular economy adoption in BESS. It requires carbon footprint declarations and promotes sustainable battery design and recycling, pushing manufacturers and users toward circular practices.

How circular economy models deliver value

This step toward a circular economy is focused on producing more durable products which can be reused when sites reach the end of their lifecycle, lowering development costs and unlocking commercial opportunities:

- **Free-up capital:** Reducing development costs can free-up capital to be invested in growth initiatives
- **Invest in new opportunities:** Investment in growth initiatives could include expending operations into new territories, scaling up performance, securing the latest technology to build efficiencies and engaging in merger and acquisition activity, among many others
- **Build resilience:** Renewable energy companies can build independence and limit reliance on volatile global supply chains that bring lengthy delays and financial disruption

Reducing risks related to resource scarcity, regulatory penalties, and waste management costs can secure a long-term competitive advantage.

ESG: The ever-moving dial of expectation

> A circular economy is a smart way for renewable energy companies to build efficiencies, reduce costs, and position themelves to take advantage of new opportunities in the clean energy transition.
>
> — **Katie Taplin,** Broking Pool Leader, Willis Natural Resources

ESG remains a hot topic across the sector, but the pressure to conform to global climate targets widely differs across regions. Political volatility looms over the renewable energy sector, directly impacting supply-and-demand dynamics, subsidy and financing mechanisms, and trade relationships. Amid this complexity, political decisions and policies are shaping the intensity of the focus on ESG in each territory, and in particular, on the net zero targets. While a radical change in U.S. strategy has revived a focus on some fossil fuels, other regions such as Asia and Europe remain focused on working toward decarbonization goals.

This increasing disparity between traditional and environment-focused political territories is leading to a multitude of approaches from insurers globally. The pervading political narrative has the power to swing insurers' appetite. For some markets, their focus remains on refining their underwriting stance to encourage and support clients as they transition away from fossil fuels to cleaner alternatives. But where political pressures are shifting away from an ESG focus, underwriters are more likely to consider the situation on a risk-by-risk basis.

The natural resources industry is at a tipping point. While the decarbonization imperative endures, the short-term pressure to demonstrate return on investment (ROI) and revenue flow is a major factor – alongside political

headwinds – in the recent uptick in some fossil fuel activity. The need to keep the lights on is maintaining a global need for stable, traditional energy, and these clients need flexibility from insurers as they navigate competing priorities in the clean energy transition.

Although a divide is emerging across the natural resources industry, early-2025 reports noted record levels of investment in the low carbon energy transition. Renewables are forecasting a 30% growth in investment from the last financial year to the current financial year[2], demonstrating a clear appetite for innovation.

A circular economy is a smart way for renewable energy companies to build efficiencies, reduce costs and position themselves to take advantage of new opportunities in the clean energy transition.

A spotlight on how circular economies can support ESG

To support environmental goals, circular economies can limit waste, reduce the reliance on mining and processing of raw materials, helping to support decarbonization efforts across the natural resources industry and boost innovation across the sector.

To align with social values, circular economies can create jobs that demand news kills, creating a forward-thinking workforce that supports economic growth.

To uphold governance obligations, circular economies help companies operate with transparency to track environmental impacts, manage circular initiatives, and ensure compliance with evolving regulations. By demonstrating clean ESG commitments, renewable energy companies can build investor confidence, attract ESG-focused investors and improve long-term financial performance.

There are challenges to implementation

The renewable energy sector currently has a small percentage of assets that have reached the end of their life compared to assets and projects that are currently operational and in the pipeline to begin construction. This will change rapidly in the years to come and has the potential to create masses of waste.

Turbine blades are particularly challenging, as they are typically made of composite materials such as fibreglass and carbon fibre, which are difficult to recycle.

Recycling technologies comes at a higher upfront cost than disposal. According to the National Renewable Energy Laboratory, in the U.S., it can cost $15 to $45 to recycle one solar panel versus only $1 to $5 to dispose of it to landfill.[3]

Government regulation often lags behind technological capabilities and until renewable energy manufacturers are held accountable to produce durable and recyclable products by law, balance sheet strength and profitability will keep the needle pointed toward the current linear model. But with supportive policies and innovation incentives, the sector can transform the industry to become more environmentally responsible and build a sustainable operating model simultaneously.

We are seeing new greener procurement rules being implemented across technologies and the construction sector. Where bidders are more frequently required to identify the origination and whole life rating of components parts. This is particularly noticeable with ‘green concrete’ which has lower environmental impact over its lifecycle and is widely used in many new projects. This more granular procurement approach, seeking to identify, rate and utilize more environmentally friendly materials will support more informed decisions for developers, owners and operators whose assessment criteria is wider than cost.

Circling back

For renewable energy companies, being an early mover to adopt a circular economy model as a strategic enabler will create new opportunities to build long-term investor partnerships and innovation.

By adopting this philosophy together, we can achieve a smoother energy transition that tackles climate change and builds a more resilient operating model for the business. It does come with its challenges and innovation is vital to keep pace with technologies that are rapidly evolving. The benefits will significantly boost the long-term industry sustainability, while keeping the climate goals at the heart of what we do.

— **Brooke Beales,** Account Executive, Global Renewable Energy, Willis Natural Resources

Find out how a circular economy model can be a strategic enabler for renewables companies committed to sustainable growth.

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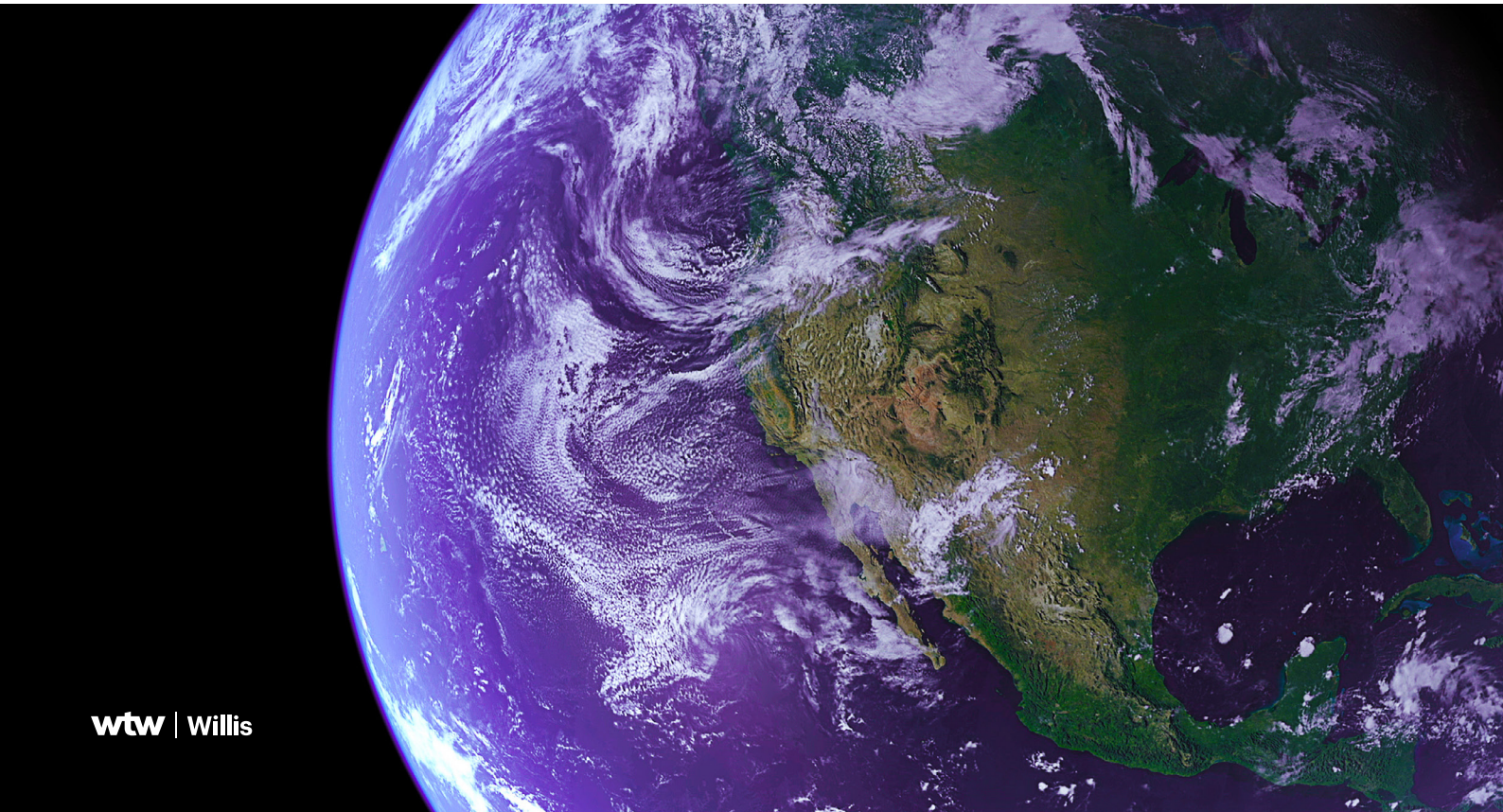


wtw | Willis

The next phase of innovation for South Africa: Hybridization

South Africa is at a turning point in its energy transition, with $10 billion invested in renewable energy assets and $2 billion dedicated to hybrid projects alone.[1] As single-technology projects come online, the focus will inevitably shift toward the next phase of innovation - how will energy developers push boundaries to enhance these systems further?

A key factor in this evolution is the integration of BESS into existing infrastructures, a move that could transform energy stability, improve resource management and maximize the effectiveness of renewable assets. By exploring this potential, South Africa can unlock new opportunities to expand hybrid energy solutions, reinforcing its position as a leader in sustainable power development.

Key takeaways:

- While South Africa remains dominated by coal in the short-term, integrating systems can provide consistent electricity generation, reducing dependence on fossil fuels and enhancing energy security
- Grid capacity limitations remain a major obstacle, particularly in regions where there is a need for significant investment in transmission networks
- BESS will have a critical role in grid stabilization

Balancing fossil fuels with new clean technologies

Although South Africa's renewable energy sector is growing, coal remains the dominant energy source, supplying around 70% of the country's electricity.[2]

Despite efforts to transition to cleaner energy, frequent blackouts — also known as load sheddingc — ccontinue to disrupt daily life. With hopes of driving change, the Government of South Africa, along with the Department of Energy and the National Energy Regulator, has developed policies and initiatives—such as the South Africa Renewable Energy Masterplan (SAREM)[3] — to accelerate the transition to solar, wind, and battery storage. These efforts aim to

supplement the country's fossil fuel-based production, promoting greater sustainability and diversification in energy sourcing.[4] The SAREM has also set a target of deploying 5GW of renewable energy annually by 2030, marking a significant increase from the previous 3GW.[5]

Achieving this goal will require strategic advancements, with BESS playing a crucial role in grid stabilization.

> At Scatec, we've seen firsthand the transformative impact that integrated systems, such as our Kenhardt project, can have in delivering reliable, clean energy at scale. In markets like South Africa, where energy security and sustainability are both pressing priorities, combining solar, wind, and battery storage unlocks enormous potential. It not only enhances grid stability but also maximizes asset utilization and ensures dispatchable power around the clock. As the sector continues to evolve, hybridization will be central to building a resilient, low-carbon energy system that supports inclusive growth across the region."
>
> — **Alberto Gambacorta,** EVP and General Manager for Sub-Saharan Africa, Scatec

Hybrid renewable energy systems are a transitional priority

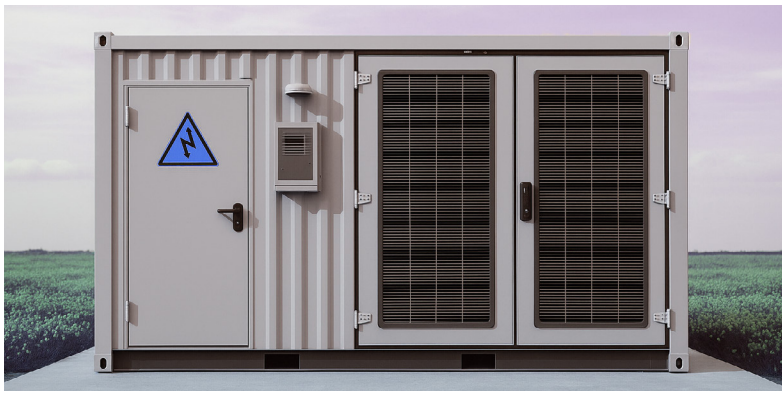
Hybrid renewable energy systems combine multiple energy sources — such as solar, wind, and battery storage — to create a more reliable and efficient power supply. While South Africa remains dominated by coal in the short-term, integrating systems can provide consistent electricity generation, reducing dependence on fossil fuels and enhancing energy security.

According to the African Energy Live Data platform, more than 4GW of hybrid power projects using battery storage are expected to come online by 2025.[6] More than half of this will come from projects in South Africa's Risk Mitigation Independent Power Producer Procurement Programme (RMIPPPP) which has allocated over 92 power producers projects, collectively contributing more than 6.3 GW of electricity into the national grid.[7]

BESS will have a critical role in overcoming hurdles

While the push for hybrid renewable energy is promising, challenges endure. Grid capacity limitations remain a major obstacle, particularly in regions where there is a need for significant investment in transmission networks. The integration of BESS is crucial in stabilizing the grid, but modernizing infrastructure to support hybrid energy systems – through smart grid technologies and transmission upgrades – requires substantial investment. Against a backdrop of climate volatility, geopolitical headwinds, technology challenges and supply chain failures, lenders' commercial, technical and credit committees are increasingly scrutinizing the quality of their investments. Insurance has a major role in unlocking project financing, with five major actions to take.

Nevertheless, with continued investment and technological advancements, South Africa is well-positioned to emerge as a leader in renewable energy innovation.



> While South Africa continues to face challenges such as frequent blackouts and infrastructure limitations, the integration of BESS into wind and solar projects will be instrumental in shaping a cleaner, more resilient energy future. With billions of dollars in assets committed to this transition, the country is making significant strides toward sustainability and energy independence.
>
> — **Ashlie Smart,** Account Executive, Global Renewable Energy, Willis Natural Resources

To find out how insurance can unlock project financing and growth opportunities for projects in South Africa, please contact:

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Tariffs, trade wars and turbulence: Combating uncertainty in the renewable energy sector

There are four key steps to building a robust and resilient risk management strategy

Within the first few months of 2025, a remarkable number of events cast uncertainty over the global renewable energy sector.

Key takeaways:

- China maintains its leading role in renewable technology manufacturing and the U.S. administration is responding by placing the U.S. and its allies at an advantage to gain a greater market share of rare earths. It's becoming clear that this is central to the U.S. strategy with Ukraine
- Major renewable energy companies trading on NASDAQ have experienced noticeable devaluation in share price[1]
- There are four key steps to building resilience against trade and political disruption

Although many expected the election of President Trump to herald a degree of disruption, few could have predicted the wider array of events that have struck the renewables industry. Investors, developers and insurance professionals are asking: what does the future hold, and is this uncertainty a near-term blip or a symptom of deep-rooted long-term issues?

In our Global Clean Energy Survey 2025,[2] 61% of renewable energy companies ranked geopolitics as one of the top three risks facing their clean energy strategy.

China is the global center of manufacturing renewable technologies

Although the new U.S. presidential administration has dominated headlines in recent months, the issues coming to the fore in 2025 date back to before November of last year. Top among these, is one of the chief causes behind the U.S. hawkishness to Chinese dominance of solar panel manufacturing. Solar PV is the cheapest power generation technology in a world chasing electrification, and doubling down on solar PV has led to a boom in project development across the world, China has been accused of using extensive public subsidies to achieve this alongside other ESG-related issues.[3] U.S. manufacturers in many states are going into administration as they find it difficult to compete with China's flood of solar panels entering the domestic market.[4]

The U.S. is claiming their stake of critical minerals

The inauguration of President Trump to the White House and his disruption of global trade was arguably a reaction against an increasing perception of strategic challenges posed by China, and President Trump's trade strategy is more far-reaching than the solar panel industry alone. At the center of his economic policy lies a demand for rare earths and critical minerals. Exploration and mining licences have become a strategic a priority, and is at the center of the attempted peace deal between Russia and Ukraine.

Aluminium, cobalt, lithium, nickel and graphite are among numerous critical minerals that are key to renewable technologies, such as solar, wind and battery energy storage.[5] The sweep of tariffs and Section 232 investigations announced by the U.S. in April 2025 had a variety of aims, including placing the U.S. and its allies at an advantage to gain a greater market share of rare earths processing for the U.S. manufacturing base.

The chess match continues, pushing pieces off the board

Partly in response to uncertainty of U.S. policies, major renewable energy companies trading on NASDAQ have experienced noticeable devaluation in share price with potential disruption to acquisitions and divestments.[6]

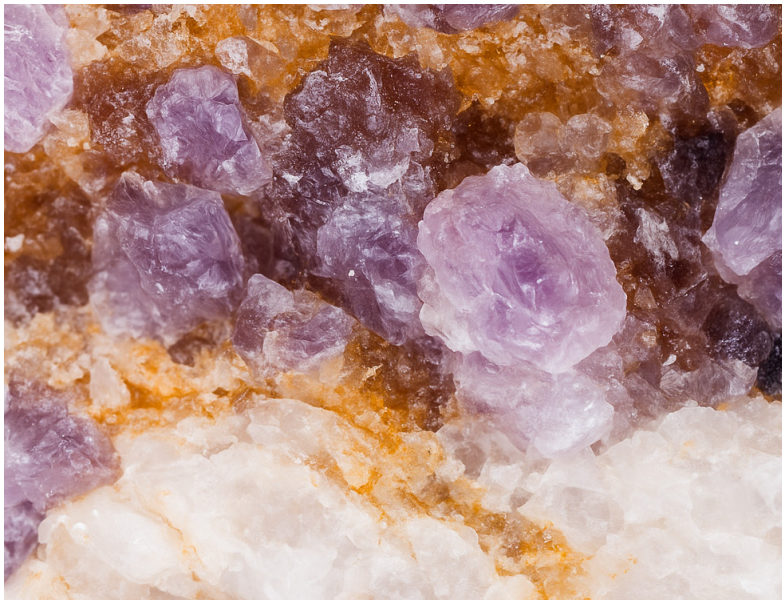

Figure 3. WisdomTree Renewable Energy UCITS ETF - USD Acc (WRNW)

As of **5/6/2025** Close **6,387**

Shares in other key manufacturers of wind technology were hit hard by President Trump on day one of his presidency, who signed an executive order temporarily suspending federal offshore wind leasing upon taking office, stating that "we're not going to do the wind thing".[7] These executive orders, alongside the tariffs announced in April, have driven the world's largest offshore wind farm developer to halt the development of a 2.4GW offshore wind farm located in the North Sea.[8] Rises in supply chain costs and interest rates have been cited as primary reasons for cancelling the project.[9]

Meanwhile, the developing situation in Texas with the introduction in April 2025 of Senate Bill 819[10] and what is being dubbed as 'the big beautiful bill', which may not be so beautiful for renewable energy companies, is moving for a faster phaseout of existing tax credits for low-carbon electricity. Under the new language, companies building solar-, wind-, geothermal- or battery-powered plants can claim the credit only if they start construction within 60 days of the bill being signed into law and then put the plant in service by the end of 2028. That's a narrow window that many projects will struggle to meet.

Pressures are amplifying across supply chains

Driven by these disruptive events, issues continue to ripple across global supply chains, including within the U.K. domestic market, where a new national energy company faced a backlash from campaigners for initially planning to use Chinese solar panels due to concerns around their manufacturing practices.[11] Meanwhile, both union bosses and former prime ministers have criticized the governments' plans for net-zero as unrealistic and potentially damaging to the U.K. economy. Sir Tony Blair and GMB General Secretary Gary Smith hit out at the government for their plans for a net zero economy, warning a catastrophic electricity failure such as was seen in Spain in April this year could equally impact the U.K. if conventional power contingencies were not in place.[12]

Lessons learned from the blackout in Spain

The blackout in Spain in April 2025 is a troubling reminder of the potential limitations faced by existing distribution networks dominated by renewable energy generation that require upgrading and balancing for the future. With around 70% of Spain's electricity grid relying on wind and solar energy sources,[13] the pervading narrative is the need to build resilience.[14] With millions of people without power, flights grounded, businesses closed and data networks failing as a result of the outages, the fallout can be measured comfortably into the billions.[15]

Coal and gas use large rotating generators that can provide inertia where there are generation gaps, but solar power doesn't have this ability, instead relying on inverters to match the grid frequency. Conventional power can manage a drop in frequency with a consistent source, but solar cannot, as its inverters are 'grid following', meaning that if frequency drops, they drop as well.

> While others claim the issue stemmed from the reactive power due to the increased voltage tripping all the equipment to protect the systems, the active power going down and the lack of inertia from solar energy sources has been highlighted by the Massachusetts Institute of Technology as a probable proximate cause for the outages.[16] At the end of the day, both cases demonstrate an imbalance between demand and supply.
>
> — **Sergio Toro,** Power and Renewables Leader, Willis Natural Resources, Latin America

Insurance is an important tool to withstand volatility

President Biden's Inflation Reduction Act[17] supported a buoyant renewable energy market, but events such as Trump's election, the blackout in Spain, and grid and control issues following at fire a transformer substation at Heathrow Airport in the U.K. continue to sharpen investors', developers', operators' and policy makers' attitudes to risk. Recent events act as reminders of the importance of risk management and sound contingency plans for renewable energy companies operating in the U.S..

> Against this backdrop, the viability of achieving the International Energy Agency's (IEA) target of net zero emissions by 2050[18] is increasingly challenging, but motivation endures. In our Global Clean Energy Survey 2025, the average investment in clean energy is set to rise by 34% from the last financial year to this financial year.[19] This is across all sectors, demonstrating an enduring commitment to decarbonization even amid a more recent surge in fossil fuel activity in regions such as the U.S.
>
> — **Steven Munday,** Global Renewable Energy Leader, Willis Natural Resources

In the latest Emerging and Interconnected Risk Survey[20], geopolitics was the most connected risk for natural resources companies. Renewable energy companies are being challenged to balance long-term decision-making, such as power purchase agreements, with short-term pressures of changing political systems and restrictions. To guard against political headwinds for both the short- and long-term, renewable energy companies need to build resilience from within.

Five key steps to building resilience against trade and political disruption:

1. Apply rigor to risk assessment and monitoring

Continuously monitor geopolitical developments and assess the potential impact, and additional effects, on business operations and markets. An emerging risk framework will be a valuable resource.

2. Harness the power and data and analytics to build a structured emerging risk framework

Advanced data modeling and AI-driven simulation enables companies to assess vulnerabilities across their portfolio. By integrating geopolitical data with financial and operational insights, predictive analytics can help organizations anticipate disruption, optimize resource allocation and enhance resilience planning. You can better understand and mitigate your exposure to natural catastrophe, climate and geopolitical perils including civil unrest, war and terror in real-time and into the future with Global Peril Diagnostic. This helps renewable and clean energy companies shift from reactive risk management to proactive, data-driven decision-making, ensuring long-term sustainability and competitiveness.

3. Apply key insurance solutions

For renewable energy companies, political risk insurance can cover confiscation, expropriation and nationalization, forced abandonment, export embargo, license cancellation, war, political violence and terrorism, and business interruption. Trade disruption insurance can bolster your risk strategy by covering events that indirectly impact assets and operations, causing reduced income. This could be due to damage to terminals, pipelines, blockage of ports or waterways, force majeure events, weather, expropriation, change in legislation and more.

4. Protection through innovation: Tariff Guard

Willis has crafted a property coverage enhancement that provides additional financial protection for insured property susceptible to increased replacement costs due to governmental trade barriers: Through Tariff Guard, policyholders receive an increased 20% limit above the original declared replacement value for

property insurance, should the repair, replacement or reinstatement of the damaged property incur additional costs that are directly attributable to tariff volatility.

4. Implement a crisis management response protocol.

Develop robust crisis management plans to respond effectively to immediate threats, such as political unrest, terrorism and war. This may include insurance, alongside contingency plans and diversified supply chains.

Renewable energy advisors and brokers have a significant role to play in enabling companies to move forward through the challenges of operating in the U.S. With sector-focused specialist knowledge connected and delivered across a global network, brokers are able to concentrate the power of global market access and solutions, to localized operations and risks. Armed with a suite of solutions and specialist support, renewable energy companies will be well-positioned to combat changing political risks with confidence.

Contributors

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> Traditional energy players tend to have a sophisticated understanding of political risk management, as they have historically made long-term investments in high-risk countries. Many renewable energy companies are younger, but some have inherited some of those capabilities, or the legacy of renegotiated emerging-market power purchase agreements that occurred in the 1990s. Hence some renewables companies operate with a sophisticated understanding and awareness about the importance of a robust strategy to tackle geopolitical risk, but across the sector the picture is more mixed.
>
> — **Sam Wilkin,** Director of Political Risk Analytics, Willis Credit Risk Solutions

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Two key steps renewable energy companies can take to manage tax risks in the U.S.

Last year, the Internal Revenue Service (IRS) was flushed with funding from the Inflation Reduction Act (IRA).[1] Today, the IRS will be lucky to maintain even a portion of its pre-IRA budget.

Key takeaways:

- In addition to trade and tariffs volatility, renewable energy companies are also facing changing tax pressures due to significant personnel reductions at the IRS, alongside a new tax bill on the horizon
- In a prolonged period of uncertainty, renewable energy companies could feel the acute impact in available project financing
- There are two key steps to take in navigating geopolitical headwinds: tax insurance and bringing tax expertise in house

Pre-January 2025: The IRS was poised to amplify enforcement

The IRA – a cornerstone of the Biden administration's activities – was signed into law in August 2022 and gave the IRS $79.4 billion in funding to transform tax administration and to improve enforcement.[2] In response to the funding, the Department of the Treasury and the IRS announced in September 2023 a Strategic Operating Plan[3] for the fiscal year 2023-2031, with a compliance coverage shift to focus attention in areas with complex issues where the IRS previously lacked the resources to fully assess risks, including those relating to complex partnership structures, large corporations, and high-income and high-wealth individuals. Under the plan, of the $79.4 billion provided to the IRS under the IRA, the IRS allocated $45.6 billion (over 57%) to enforcement over the 2023-2031 period.[4]

To implement this plan, the IRS made two significant announcements relevant to the renewable industry:

- First, it announced the opening of more than 3,700 positions nationwide to help with expanded enforcement focusing on complex partnerships and large corporations.[5] These positions were intended to attract more seasoned professionals, because they were listed at a hiring level usually reserved for those with specialized technical

skills. This announcement is relevant to the renewable industry due to the use of partnerships and other financial entities to structure the relationship between developers and investors.

- Second, the IRS announced a change to its organizational structure.[6] The new structure consolidates two deputy commissioner positions into a single Deputy Commissioner. Four chiefs would then report to the new consolidated Deputy Commissioner, including a new Chief Taxpayer Compliance Officer. Furthermore, the IRS announced the creation of a new pass-through field operations unit[7] within its Large Business & International Division (LB&I) to focus on partnerships and s-corporations. These pass-through audits were previously spread out in small business/self-employed (SBSE) and LB&I. The combined structure was designed to support a partnership audit strategy using an enterprise approach, meaning that the entire partnership structure, including related non-partnerships, could be included in an audit.

To support the IRS, the IRS Office of Chief Counsel (OCC) also announced an organizational change in October 2024: the Office of the Associate Chief Counsel, a branch of the OCC,[8] will be split into two offices – one with jurisdiction over partnership, s-corporation, trust, and gift and estate tax issues and another with jurisdiction over credits and incentives and excise tax.

With these structural changes, practitioners were advising clients to expect increased audits of pass-through entities, better trained auditors on partnership issues, likelihood of improved IRS identification of potential noncompliance, and a better deployment of audit reserves.

By the end of 2024, the IRS looked poised to do some serious enforcement.

Since January 2025: Major personnel changes

2025 changes at a glance:

- Reduced IRS audit staff
- Signals from the IRS Acting Chief Counsel that the reduction in force would impact the attorneys at the Associate Chief Counsel's Office in charge of regulatory guidance
- Another tax bill on the horizon
- U.S. tax administration function will change in the years ahead

Since January 2025, there has been continued turnover in the executive leadership positions at the IRS and OCC. In April 2025, Acting IRS Commissioner Michael Faulkender became the fifth person in that position since Trump took office.[9]

Immediately under the executive leadership of the IRS, there is similar turbulence at the senior leadership rank. Since January at the IRS, the Chief Financial Officer, Acting Chief Financial Officer, Deputy Chief Operating Officer, Chief Tax Compliance Officer, Chief Human Capital Officer, Chief of Staff, Chief Transformation Officer, Chief Implementation Officer, Chief Risk Officer, Chief Privacy Officer, and the Director of the Officer of Professional Responsibility have all departed.

Reduced audit staff:

More widely, the IRS is on track to lose[10] nearly a third of its workforce this year after about 20,000 employees accepted a second deferred resignation offer – an opportunity to resign and be placed on paid administrative leave through the end of September.

Losing 20,000 employees alongside natural attrition due to retirement, would bring the agency's total staff to about 70,000, effectively undoing the hiring blitz of technical experts funded by the IRA.[11]

A reduction in force could impact Chief Counsel attorneys:

According to a recent Tax Notes Today article,[12] more than 300 attorneys in the IRS OCC have submitted requests for the second deferred resignation program.

This planned reduction is happening in the midst of a planned promulgation of a new tax bill – dubbed 'the big beautiful bill',[13] which is expected to modify provisions relating to the IRA, with new restrictions, new definitions, and new analysis in need of interpretation (i.e., the sort of activities that the OCC Associate Chief Counsel's Office are tasked).

> It will likely change in the direction of fewer audits, fewer regulatory guidance, and therefore greater uncertainties.
>
> — **Shirley Chin,** Head of Tax Insurance, North America, Willis

On April 18, 2025, in the midst of the tumultuous staff reduction and leadership changes, the IRS released its first ever multiyear operating plan.[14] When the rest of the IRS

was suffering from budget and personnel reductions, the Whistleblower Office announced the hiring of 36 additional employees (reflecting a 75% increase)[15] during fiscal year 2024, enhanced efficiency in processing whistleblower claims, and a commitment to paying whistleblower awards faster. It signals a potential turn to the Whistleblower Program to make up for a drastic reduction in its workforce.

What has stayed the same

Despite these dizzying personnel changes, some things have stayed constant. The OCC leadership, and legal expertise, at the newly restructured Office of the Associate Chief Counsel (Passthroughs and Special Industries) and the broader IRS organizational restructuring have remained the same.

Similarly, the statute of limitation (SOL), the time period established by law during when the IRS can review, analyze, and resolve a taxpayer's tax related issues, has not changed - three years and can be extended to six in certain circumstances.

What this means for tax risks in the renewable energy sector

The implication of these abrupt resignations and reduction in work force suggest that, at least for the short term, the IRS will need to narrow its audit focus and scale up on the threshold size of an issue that would be picked up for audit.

Tax credits, given their prominence in the IRS and OCC organizational structure, will likely stay an audit focus, but its impact will likely be felt more by large developers and large banks claiming the tax credits and the large corporate taxpayers purchasing them.

A spotlight on tax credits: A recent survey showed that 84% of investors and 73% of developers would reduce their clean energy activities if tax credit policies were modified or repealed.[16]

The timeline from enacting the IRA to releasing the final section was faster than anything any tax practitioner has ever seen and reflected the Biden Administration's priority in supporting the IRA and the resources available at the Treasury and the IRS. There will be neither political priority nor resources available for the IRA under this current administration to provide regulatory guidance to the renewable industry. The time it takes for regulatory guidance, coupled with various sunset and phaseout dates coming as soon as a year after the eventual enactment date, will create a great deal of uncertainty for the renewable industry. Uncertainty is anathema to financing. This uncertainty threatens to chill billions in investments with direct impacts on project economics and bankability.

After pulling $3.7 billion in clean energy funding[17] and suspending all funding disbursements under the IRA, clean energy projects are unable to rely confidently on federal support. Private equity and other investments are under pressure to keep renewable energy projects moving. But private investment in clean energy manufacturing, which reached $89 billion in two years,[18] faces uncertainty due to the administration's stance and regulatory delays. Some companies are reconsidering or halting projects, particularly in hydrogen electrolyzer manufacturing and electric vehicle supply chains, due to unclear tax credit regulations and policy shifts.[19]

Two ways renewable energy companies can take action

1. Invest in tax insurance

Tax insurance eliminates the uncertainty inherent in tax compliance by transferring the risk of loss arising from a tax challenge to an insurance company. Particularly powerful during merger and acquisition activities, tax insurance will compensate the insured for:

- Taxes assessed by a tax authority in respect to the insured tax risk
- Interest and penalties (to the extent insurable)
- Defense and contest costs to defend the tax matter
- Taxes incurred on receipt of insurance proceeds (known as a 'tax gross-up').

> Unlocking project financing is a major priority for the renewables sector and without a doubt, tax insurance will have to play a part in continuing to facilitate tax credit claims and transfers in this period of uncertainty.
>
> — **Shirley Chin,** Head of Tax Insurance, North America, Willis

Tax insurance allows renewable energy companies more certainty to meet financial goals, structure transactions and solve other contingent exposures that arise during business and tax planning. This creates a more stable financial and operating environment to secure financing, stabilize supply chains and revenue flows, and pursue growth opportunities.

2. Bring tax expertise in house

In addition to tax insurance, developers in the renewable space, especially large developers, should consider bringing tax expertise in-house to interpret the coming onslaught of new tax laws, muddle through the uncertain tax terrain, operationalize new compliance requirements and to socialize these new and changing tax requirements to ensure internal tax compliance throughout the organization.

An effective tax leader can craft a legal position on open tax questions, ensure internal buy-in and consistency, analyze the cost vs. benefit of obtaining tax insurance and defend the tax position if and when challenged.

Large developers should ensure that they are prepared to mount coordinated accounting, tax and legal responses to any information document requests from the IRS, especially in the early stage of an audit when the audit team has the authority to withdraw an audit request letter without further questions. At a government bureaucracy, the longer an audit drags, the harder it is to close it out. With the oncoming deluge of tax talent coming on the market due to reduction at the IRS and OCC, there is an opportunity for developers to hire these tax professionals as part of an overall tax strategy to brace for the uncertainties ahead.

> It helps to have an in-house tax expert who knows what the tax question is, how to build an audit defense strategy around it, how to ensure tax compliance around a strategy, and has knowledge of the chess moves necessary to defend against an IRS challenge.
>
> — **Shirley Chin,** Head of Tax Insurance, North America, Willis

To take action in managing tax risks amid geopolitical volatility, contact:

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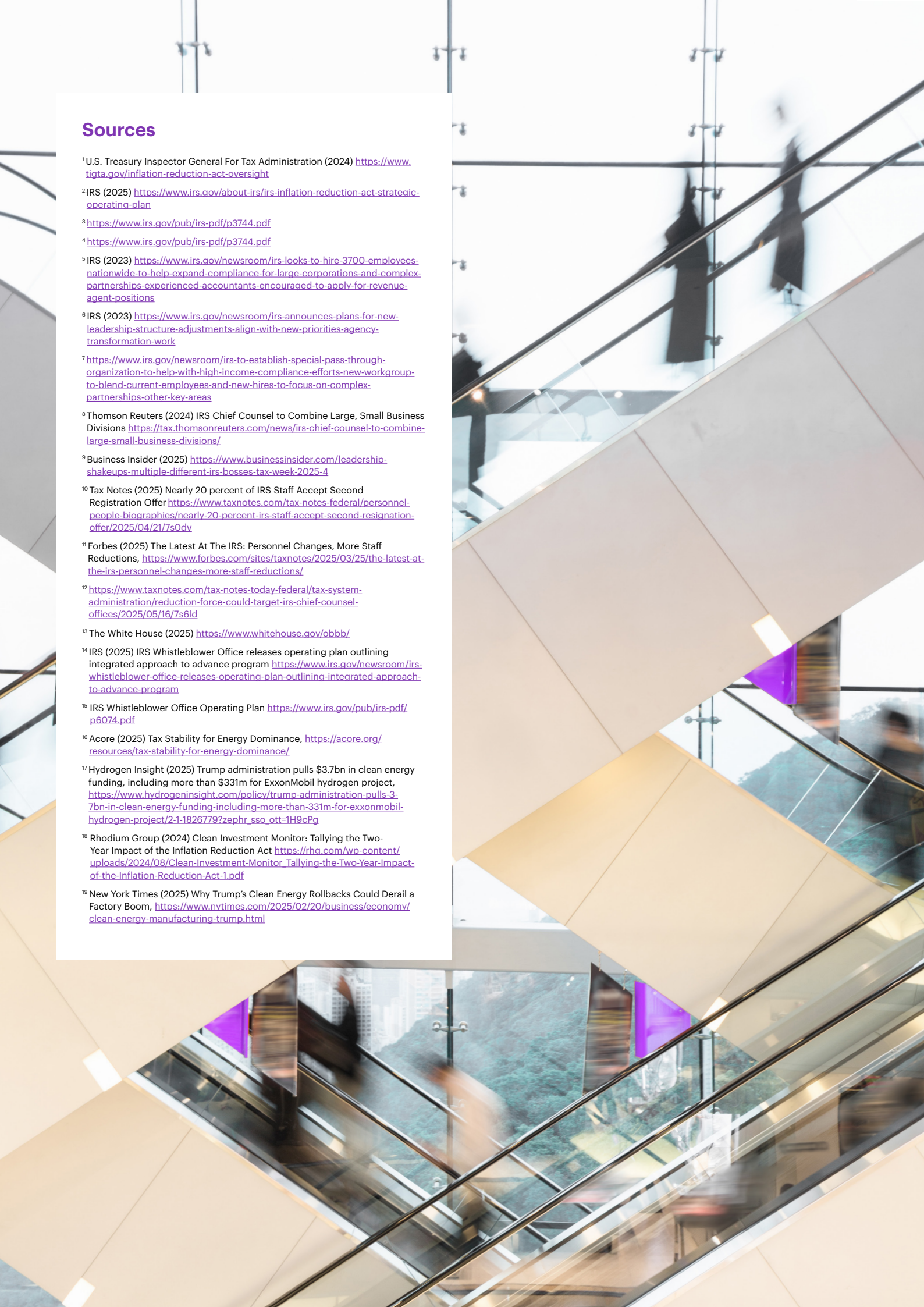

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The new generation: A workforce to power the renewables sector into the future

Young professionals are increasingly offering fresh perspectives and innovative approaches that align closely with the needs of the sector.

As wind, solar, BESS and other clean energy technologies continue to claim their stake in the global energy mix, insurance has emerged as a key enabler in supporting the development and long-term viability of these projects. To drive the next generation of renewable energy, a new generation of insurance professionals are poised to tackle risks with innovation and creativity.

Key takeaways:

- A technology-literate generation bring new skills to the table, enhancing efficiency and bringing diversity of thought to tackle challenges
- As the demand for clean energy accelerates, the insurance sector will continue to play a crucial role in shaping a more sustainable world
- For the new generation of professionals, this industry provides not only a compelling and dynamic career but also the chance to make a tangible impact

Why insurance is a key enabler of the clean energy transition

Insurance plays a key role in de-risking utility-scale renewable projects, which face diverse challenges throughout their lifecycle.

- **Providing sector-specialist insights on how to manage evolving risks and build resilience:** From construction delays, to equipment failure, to geopolitical, tariff and climate-related risks across supply chains, insurance provides a financial safety net in the event of failure or loss of assets and operations, alongside identifying emerging and evolving risks to build long-term resilience
- **Supporting innovation and new technologies:** Insurance companies are developing tailored insurance products for specific triggers and adapting underwriting practices to cover emerging technologies which have different risk profiles than traditional fossil fuel assets. Keeping pace is crucial for the deployment and scaling of innovative energy solutions
- **Mobilizing capital and facilitating investment:** Insurance is essential in de-risking investments, thereby attracting the trillions of dollars needed for the energy transition. Many financiers require insurance as a prerequisite for lending or investing in renewable projects, making insurance both a gatekeeper and enabler for capital flow into the sector
- **Collaborating with regulators:** The insurance sector is increasingly involved in regulatory discussions to help shape frameworks that support low-carbon technologies. Insurance solutions can address risks emerging from new regulations, such as mandatory carbon capture requirements, thus enabling compliance and fostering innovation

New talent is helping insurance keep pace with change

As the clean energy market evolves, the need for adaptive, tech-proficient talent continues to grow, and early-career professionals are increasingly meeting this challenge. “Early-career professionals in insurance are actively involved in developing tailored risk transfer strategies and assessing clients’ exposures to help them build a sustainable business” Grace Godfrey, Account Executive, Global Renewable Energy, Willis Natural Resources.

The new broking talent entering the renewable energy insurance sector is helping to drive change by:

- **Using technology as a tool to build efficiency and accuracy in risk management:** Early-career insurance professionals have grown up in a time of rapid technological change. From the extinction of floppy disks to the growing power of artificial intelligence, a technology-literate generation have never had a steep learning curve to adapt to automation and digital tools. Insurance professionals are bringing efficiency and accuracy to the table. With the support of data-driven insights, young insurance professionals are poised and ready to harness technology to innovate new approaches to risk management for clients
- **Bringing new skills to the table:** The path to insurance varies. While some young insurance professionals may have joined through an apprenticeship scheme, others may have completed degrees or apprenticeships in adjacent industries such as engineering, which provide highly valuable transferrable skills. This diversity of thought is critical in tackling insurance and risk challenges, innovating new solutions and taking the reins on driving change
- **Keeping pace with change:** Young insurance professionals in renewable energy have opportunities to participate in events such as forums and roundtables facilitated by industry bodies such as the Young Energy Professionals (YEP) Forum and the Chartered Insurance Institute (CII). Their involvement helps bridge the gap between the insurance industry and energy innovators, facilitating knowledge sharing and partnerships that accelerate the transition to low-carbon energy systems
- **Harnessing motivation from sociocultural values:** The new generations of renewable energy insurance professionals are experiencing the first-hand severity of climate change, and are educated on the importance of decarbonization from a young age. This mindset aligns with the goals of the renewable energy industry – boosting collaboration between natural resources companies, insurance brokers and underwriters to achieve a shared objective

> From assessing business interruption exposures to supporting efficient claims responses, our work ensures that renewable energy projects remain stable and financially protected.
>
> — **Justin Lewars,** Graduate, Global Renewable Energy, Willis Natural Resources

Carrying the torch to light the clean energy pathway

The renewable energy insurance market itself is young and fast-growing, mirroring the broader industry's trajectory. Emerging more prominently in the early 2000s, it has seen high levels of expansion due to global climate goals, increased investment and international policy commitments through economic tools, such as governmental subsidies. The global renewable energy insurance market is characterized by its collaborative and dynamic atmosphere where many of the individuals have a shared desire to continue having a positive impact, offering a strong sense of community, opportunity, and purpose. Our Global Renewable Energy team is composed of specialists in all technologies including solar PV, BESS and offshore and onshore wind, combining deep technical specialism with a forward-thinking energy. The global nature of the work, the diversity of technologies, and the evolving risk landscape offer rich, varied career paths for those entering the field today.

Renewable and clean energy insurance is more than just risk, it's an opportunity to have a meaningful role in pushing the dial on a lower-carbon future. As the demand for clean energy accelerates, the insurance sector will continue to play a crucial role in shaping a more sustainable world. For the new generation of professionals, this industry provides not only a compelling and dynamic career but also the chance to make a tangible impact.

> Alongside the more established renewable energy technologies, our work spans across emerging technologies such as, floating offshore wind, battery storage and green hydrogen. By collaborating closely with clients, markets, and more experienced insurance colleagues, we are building a comprehensive picture of the state of play now, and thinking creatively about how we can drive meaningful change moving forward.
>
> — **Dominic Coulson,** Account Executive and Broker, Global Renewable Energy, Willis Natural Resources

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This update analyses our observations of the current global market conditions for renewable energy insurance and the impact this has on insurance buyers. This update is based on our observations of the market for our WTW clients and is not a whole of market review.

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