



THE ROLE OF INSURANCE IN ENERGY TRANSITIONS

*ENABLING INCLUSIVE, RESILIENT, AND INVESTABLE ENERGY
FUTURES ACROSS APEC*



AN APEC BUSINESS ADVISORY TOOLKIT

TABLE OF CONTENTS

Executive Summary

Introduction

Key Areas:

1. Mobilizing private investment capital
2. Insurance as a driver of climate resilience and energy security
3. De-risking energy investment through insurance
4. Leveraging insurance as a risk signal

ABAC 2025 Policy Recommendations

Conclusion

Tools and Resources

References

Acknowledgements

Annex – The Role of Insurance in Energy Transitions, Webinar Readout, July 7, 2025

Executive Summary

The Asia-Pacific region aims to transform its energy systems to be cleaner, smarter, reliable, and resilient to reach global climate goals. This will require large-scale investment, innovation, and cooperation; however, many energy transition projects are seen as high risk due to their cost, reliance on new technologies, and exposure to climate and market volatility.

Insurance helps overcome these barriers by transferring and pricing risk, lowering financing costs, and making innovative projects more viable. It also strengthens energy security and resilience by protecting supply chains, supporting recovery after disasters, and embedding risk management into infrastructure.

This toolkit offers APEC economies practical strategies to use insurance as a driver of investment and resilience. It provides policymakers, regulators, and the private sector with tools to mobilize capital, manage risks, and support sustainable energy transitions across the region.

Introduction

The transition to cleaner, more resilient energy systems is one of the most urgent challenges facing Asia-Pacific Economic Cooperation (APEC) economies. Achieving climate goals while ensuring affordable, reliable energy will require unprecedented levels of investment, innovation, and cross-border cooperation. Yet energy transition projects, whether offshore wind, hydrogen, liquid natural gas, carbon capture and storage, advanced nuclear, or distributed renewables, are inherently risky. They often demand large upfront capital expenditures, long payback periods, and exposure to new or untested technologies. In addition, climate-related hazards and shifting market conditions introduce volatility that can discourage investors and delay projects.

Insurance is uniquely positioned to address these challenges. More than a financial backstop, insurance is a strategic enabler of investment and resilience. By transferring and pricing risk, insurers create the conditions for private capital to flow into energy projects, lowering financing costs and making first-of-a-kind technologies bankable. Insurance also helps economies withstand shocks by ensuring rapid recovery after disasters, safeguarding supply chains, and providing the confidence that clean energy assets will remain operational in a changing climate.

Importantly, insurers are not only risk managers but also risk signalers. Through underwriting standards, pricing, and risk modeling, they communicate which projects are viable and resilient, influencing where and how capital is deployed. As such, insurance sits at the nexus of finance, technology, and policy. For policymakers and regulators, leveraging insurance means embedding it into domestic climate and energy strategies, enabling regulatory flexibility for innovative products, and creating incentives that align insurance with public goals of sustainability and resilience.

Introduction

For the APEC region, where economies vary widely in terms of energy systems, financial maturity, and climate exposure, insurance offers a unifying framework. It enables collaboration across borders, supports knowledge-sharing on emerging technologies, and provides scalable solutions that can be adapted from advanced to developing markets. By integrating insurance more fully into the energy transition, APEC economies can accelerate climate goals, strengthen resilience, and attract the capital required to meet the region's long-term growth and sustainability objectives.

Purpose of the Toolkit

This toolkit equips APEC economies with practical, evidence-based frameworks to leverage the full scope of insurance in advancing energy transition projects. Drawing on global best practices, industry innovations, and regional perspectives, it provides strategies that can be adapted across diverse economic and regulatory contexts. Its aim is to help economies unlock investment, safeguard energy security, and ensure the transition to cleaner energy is both inclusive and sustainable.

Key Areas: Four Strategic Priorities for Insurance in Energy Transition

For APEC economies, unlocking the potential of insurance in the energy transition is not simply a financial consideration but a strategic necessity. As economies pursue cleaner, more reliable, and resilient energy systems, they face complex challenges: mobilizing vast amounts of capital, safeguarding infrastructure against climate risks, and ensuring that innovative technologies can move from pilot to scale. Insurance provides solutions across all these fronts. It lowers barriers to investment, strengthens resilience, and signals where risks are well managed, thereby helping governments and businesses align their efforts with long-term growth and sustainability goals.

This toolkit therefore focuses on four areas where insurance can deliver the greatest value. These include mobilizing private investment capital, supporting climate resilience and energy security, de-risking emerging technologies, and serving as a risk signal that shapes investment and regulatory decisions. Together, these themes reflect the unique and multifaceted role of insurance as both a financial safeguard and a strategic enabler. By addressing these topics, the toolkit provides policymakers, regulators, and private sector leaders with practical entry points to leverage insurance more effectively in advancing energy transition projects across the region.

1. Mobilizing Private Investment Capital

The energy transition requires capital at an unprecedented scale, but many APEC economies face difficulties attracting private investors. Projects like hydrogen hubs, offshore wind farms, and carbon capture facilities are often large-scale, capital-intensive, and technologically complex. They carry long payback periods and revenue uncertainty, which makes them less attractive compared to shorter-term investments. Insurance solutions can bridge this financing gap by transferring risks and stabilizing returns. By underwriting political, regulatory, and performance risks, insurers unlock access to capital and reduce financing costs. Engaging insurers early in project design also enhances credibility, ensuring projects are structured to meet international standards and are considered bankable.

Investment Tools Available

- Political, credit, and regulatory risk insurance lowers investor barriers.
- Performance guarantees provide confidence to contractors and financiers.
- Tax credit insurance helps monetize incentives in renewable markets.
- Standardized facilities (e.g., Zurich–Aon hydrogen program) support early-stage projects.
- Early engagement with insurers improves project “bankability.”

Implications for APEC Economies

- Policymakers can design blended finance models where governments share risks with insurers.
- Regional insurance pooling can make smaller markets more attractive to global investors.
- Regulators can promote transparent insurance frameworks to align with international capital markets.

Resources such as the Insurance Development Forum Knowledge Hub, AON’s Insurer Roadmap for Navigating the Energy Transition, and UNEP FI’s finance tools provide practical models for reducing financing costs, aligning projects with international standards, and making them more attractive to global investors, including those in emerging markets.

2. Insurance as a Driver of Climate Resilience and Energy Security

Resilient energy systems are the backbone of the transition. APEC economies, particularly in the Asia-Pacific region, are among the most disaster-prone in the world. Extreme weather events threaten clean energy infrastructure, from solar farms to LNG terminals. Insurance can strengthen energy security by providing immediate liquidity after disasters and incentivizing climate-resilient infrastructure before disasters strike. Insurers' catastrophe modeling also equips policymakers with data to integrate climate resilience into planning and regulation. In this way, insurance supports both the continuity of supply and long-term adaptation to a changing climate.

Resilience and Continuity Solutions

- Parametric insurance provides rapid recovery funds after disasters.
- Resilience-linked underwriting lowers premiums for stronger designs.
- Business interruption coverage safeguards energy supply chains.
- Risk modeling informs policy and infrastructure adaptation strategies.
- Insurance builds investor and community confidence in energy continuity.

Implications for APEC Economies

- Governments can deploy parametric disaster insurance pools for critical infrastructure.
- Regulators can require climate risk assessments and disclosure in energy projects.
- Private insurers can expand resilience-linked products to reduce vulnerability and lower costs.

The UN Environment Programme Finance Initiative (UNEP FI) provides a global framework for integrating climate risk into insurance and investment practices. Through its Principles for Sustainable Insurance and Insuring Climate Resilience initiative, UNEP FI demonstrates how insurers can deploy resilience-focused products, support climate-informed infrastructure planning, and build investor and community confidence in long-term energy continuity across APEC economies.

3. De-risking Energy Investment through Insurance

Investors often hesitate to fund new technologies due to high uncertainty and risk. Hydrogen, floating solar, and CCS are essential to decarbonization but remain expensive and complex. Insurance can de-risk these projects by providing coverage across the lifecycle, from construction to operations. Innovative solutions like parametric weather products stabilize revenue streams, while tax credit and surety products improve financial certainty. Political and regulatory risk insurance further reduces investor hesitation, particularly in emerging markets. Collectively, these tools reduce financing costs and help move projects from demonstration to deployment.

Risk Mitigation Instruments

- Construction and operational coverage reduce technical and accident risks.
- Parametric weather insurance smooths renewable revenue volatility.
- Tax credit and surety insurance stabilize cash flow and unlock lending.
- Political and expropriation risk insurance reduces sovereign uncertainty.
- Insurance accelerates the bankability of first-of-a-kind technologies.

Implications for APEC Economies

- Regional bodies can create shared risk pools for clean energy investments.
- Governments can partner with multilateral banks and insurers to extend coverage.
- Regulators can establish innovation sandboxes for new insurance products.

Insights from the Geneva Association's reports on climate technology, Deloitte-AON's "Insuring the Climate Transition," and sector-specific analysis from the Asia Natural Gas & Energy Association illustrate how economies can stabilize revenues, extend coverage to first-of-a-kind projects, and align insurance with the realities of capital-intensive investments such as LNG and hydrogen.

4. Leveraging Insurance as a Risk Signal

Insurance acts as both a financial safety net and a signaling mechanism for risk. When a project receives insurance coverage at favorable terms, it signals that risks are well-managed and transparent, boosting investor confidence. Conversely, projects that are deemed uninsurable or carry high premiums reveal shortcomings in design, safety, or governance. Policymakers can leverage this signaling function by using insurance availability and pricing as inputs for project approval, permitting, and investment prioritization. Insurers, by embedding climate and resilience factors into underwriting, guide capital flows toward credible and sustainable projects.

Market and Policy Signals

- Underwriting standards validate project quality for investors.
- Premium differentiation rewards stronger safety and ESG practices.
- Insurance signals systemic risks to regulators and financiers.
- Risk assessments steer capital toward resilient projects.
- Insurance provides ongoing monitoring and discipline for energy markets.

Implications for APEC Economies

- Regulators can integrate insurance signals into approval processes for energy projects.
- Governments can encourage insured risk disclosure for public-private partnerships.
- Insurers can help steer capital toward climate-resilient and sustainable assets.

Resources such as UNEP FI's "Underwriting the Transition" and "Closing the Gap" reports, along with supervisory perspectives from the Sustainable Insurance Forum, demonstrate how economies can incorporate insurance signals into project approval, disclosure frameworks, and investment prioritization, steering capital toward credible and resilient projects.

ABAC 2025

Policy Recommendations

Following two presentations during the ABAC II and III meetings in 2025, the following recommendations were adopted in the ABAC 2025 Report to Leaders.

Leveraging the role of insurance in energy transitions

The insurance sector is uniquely positioned to support energy transformations across the APEC region. It not only helps to assess and manage complex risks, but also unlocks investment, supports climate resilience, and enables the deployment of key energy technologies. To maximize the full potential of the insurance industry, APEC should leverage the knowledge within the industry early on in project development and establish stable policy and regulatory frameworks to build an enabling environment that will expedite the development of risk management solutions and activate cross-sectoral discussions with relevant stakeholders around energy transition and resilience.

- Support an ABAC Insurance and Energy Transition Toolkit
- Establish stable policy, regulatory frameworks, and harmonization across borders to build an enabling environment.
- Expedite development of risk management solutions and standards that can help replicate projects faster.
- Incorporate prefunded financial protection in energy transition projects.
- Activate cross-sectoral discussions with relevant stakeholders and government around energy transition and resilience.
- Include in the private sector insurance industry early on in project phasing and development.

Conclusion

Insurance is central to enabling APEC economies to build cleaner, more reliable, and resilient energy systems. By engaging insurers as strategic partners, economies can unlock capital, reduce risk, and strengthen resilience while accelerating energy transition pathways that support inclusive and sustainable growth.

Tools and Resources

These tools are intended to complement the recommendations outlined in this toolkit by offering practical references, technical guidance, and lessons that APEC economies can adapt to their own contexts. The materials compiled here include resource hubs from industry associations and insurers, knowledge platforms from international organizations, and targeted research from leading firms and think tanks. This list is illustrative rather than exhaustive and will continue to evolve as new resources and best practices emerge.

Global Guidance and Frameworks

Insurance Development Forum, Knowledge Hub

Global knowledge platform on insurance and risk management solutions.

<https://www.insdevforum.org/knowledge/>

United Nations Environment Programme Finance Initiative – Tools for the Finance Sector

Practical tools for integrating sustainability into finance and insurance.

<https://www.unepfi.org/tools/>

Underwriting the Transition: A deep-dive transition plan guide for insurance and reinsurance underwriting portfolios, United Nations Environment Programme, Forum for Insurance Transition to Net Zero (FIT), July 2025

Detailed guidance for underwriting portfolios during the transition.

<https://www.unepfi.org/industries/insurance/underwriting-the-transition-a-deep-dive-transition-plan-guide-for-insurance-and-reinsurance-underwriting-portfolios/>

Closing the Gap: The emerging global agenda of transition plans and the need for insurance-specific guidance, United Nations Environment Programme, Forum for Insurance Transition to Net Zero (FIT), November 2024

Insurance-specific guidance on transition planning.

<https://www.unepfi.org/industries/insurance/transition-plan-guide/>

Tools and Resources

Supervisory Thinking on Insurance-Related Climate Transition Plans,

United Nations Development Programme (UNDP) Sustainable Insurance Forum (SIF),
October 2024

<https://sustainableinsuranceforum.org/wp-content/uploads/2024/11/TPWG-Report.pdf>

Industry Insights and Initiatives

An Insurer Roadmap for Navigating the Energy Transition, AON

Insights on how insurers can adapt portfolios and solutions.

<https://www.aon.com/en/insights/articles/reinsurance-roadmap-for-energy-transition>

Insuring the Climate Transition A view from risk customers and solution providers on what works and what needs to be improved, Deloitte and AON, 2024

Industry perspectives on what works and where improvements are needed.

<https://www.deloitte.com/content/dam/assets-shared/docs/industries/financial-services/2024/insuring-the-climate-transition.pdf>

Research and Thought Leadership

Climate Tech for Industrial Decarbonization: What role for insurers?, The Geneva Association, January 2024

Exploration of insurance's role in supporting industrial climate tech.

<https://www.genevaassociation.org/publication/climate-change-environment/climate-tech-and-insurance#>

Bringing Climate Tech to Market: The powerful role of insurance, The Geneva Association, April 2024

Case studies on how insurance accelerates commercialization of new technologies.

<https://www.genevaassociation.org/publication/climate-change-environment/climate-tech-and-insurance#>

Tools and Resources

An Insurance Risk Framework for Climate Adaptation, Boston Consulting Group, December 2023

<https://www.bcg.com/publications/2023/an-insurance-risk-framework-for-climate-adaptation>

Regional and Sector-Specific Resources

Asia Natural Gas & Energy Association, Resource Hub

Regional perspectives on energy transition priorities and market dynamics

<https://angeassociation.com/resource-hub/>

References

Organisation for Economic Co-operation and Development. (2023). *Enhancing the insurance sector's contribution to climate adaptation* (OECD Business and Finance Policy Papers, No. 26). OECD Publishing. <https://doi.org/10.1787/0951dfcd-en>

United Nations Environment Programme Finance Initiative. (2022). *Insuring the net-zero transition: Evolving thinking and practices [White paper]*. UNEP FI.

<https://www.unepfi.org/wordpress/wp-content/uploads/2022/04/Insuring-the-net-zero-transition.pdf>

United Nations Environment Programme Finance Initiative. (n.d.). *Forum for Insurance Transition to Net Zero (FIT)*. UNEP FI. <https://www.unepfi.org/forum-for-insurance-transition-to-net-zero/>

Ekholm, C. (2024, May 22). *Why insurance is key to speeding up the energy transition: Firms that develop expertise in emerging clean tech will reap financial rewards*. Financial Times. <https://www.ft.com/content/d6f4ab10-e622-45b2-a80d-1401cef2ecc9>

Acknowledgements

ABAC would like to extend a special thank you to the private sector partners who have contributed to this toolkit and the conversation of the role of insurance in energy transitions including:

- ABAC Members and Staff
- National Center for APEC Members
- The Asia-Pacific Financial Forum – Disaster Risk and Insurance Network
- The Geneva Association
- The Asia Natural Gas and Energy Association (ANGEA)

Thank you for your support.

ABAC project lead and author: Nicole Vukonich, ABAC USA Lead Staffer, Policy Director at the National Center for APEC. Endorsed by ABAC on October 28, 2025 in Busan, South Korea.

Annex

Readout: The Role of Insurance in Energy Transitions, Webinar

The webinar held July 7, 2025 (Americas)/July 8 (Asia) drew 45 attendees from 11 APEC economies, with a speaker from the United Kingdom. APEC Economies represented include Canada, Chile, Indonesia, Japan, Malaysia, Mexico, Peru, Russia, Singapore, Thailand, and the United States.

Overview

The session examined how insurance can support energy transition projects across APEC economies. Participants discussed the role of insurance in mobilizing investment, addressing complex risks in emerging technologies, strengthening resilience against extreme weather, and fostering collaboration between governments, industry, and insurers.

Speakers

Speakers included insurance industry association representation, large private sector insurers from Asia and North America, and a regional energy sector-specific association representative.

Annex

Readout: The Role of Insurance in Energy Transitions, Webinar,
continued.

Key Themes

1. Insurance as a Strategic Enabler

- Insurance was described as indispensable: without it, financing and projects cannot proceed.
- Insurers are not only risk-transfer providers but also the second-largest institutional investors after pension funds, giving them influence over where capital flows.
- Their role includes performance guarantees, completion bonds, and risk engineering, which improve project credibility and bankability.

2. Risks and Data Needs for New Technologies

- Emerging technologies like hydrogen and carbon capture face 18 categories of risks, from construction and operational hazards to long-term liabilities.
- The “valley of death” for new technologies can be narrowed if insurers are engaged earlier to design standards and frameworks.
- Pilot projects provide critical data to make technologies insurable and accelerate scaling.

3. Regional Challenges and Perspectives

- In Asia, renewable projects face both profitability challenges and technical risks that complicate underwriting.
- Examples include solar projects on mountain slopes vulnerable to landslides, wind turbines frequently damaged by lightning, and theft of copper wiring.
- These issues highlight the need for capacity-building, refined underwriting guidelines, and stronger risk management practices in local markets.

Annex

Readout: The Role of Insurance in Energy Transitions, Webinar,
continued.

Key Themes

4. Policy and Regulatory Priorities

- Stable and harmonized policy frameworks were identified as essential to attract insurance participation.
- Pre-funded financial protection mechanisms, clear rules for long-term liability management (particularly for CCS), and incentives for resilient project design were emphasized.
- A striking example was cited: \$3 billion in U.S. solar projects could not secure insurance because resilience measures were not integrated into design.

5. Partnerships and Collaboration

- Early involvement of insurers in project planning was highlighted as a major shift from traditional practice, where they only entered once technologies were commercially proven.
- Public-private partnerships and structured collaboration across the project lifecycle can reduce systemic risks and improve investment flows.
- Transparent communication and the signaling role of insurance help build confidence among both markets and communities.

Action Items

- Develop an “insurability readiness framework” to assess risks systematically.
- Engage insurers in pilot projects to generate data and shape standards.
- Address barriers to long-term liability coverage for CCS and other technologies with extended timelines.
- Incorporate resilience against extreme weather into both project design and insurance products.
- Strengthen regional cooperation to harmonize underwriting standards and support knowledge-sharing across APEC economies.

Annex

Readout: The Role of Insurance in Energy Transitions, Webinar,
continued.

Conclusion

The dialogue underscored that insurance is not merely a financial safeguard but a catalyst for investment, resilience, and innovation. By embedding insurance into the design, financing, and governance of energy transition projects, APEC economies can mobilize private capital, manage risks more transparently, and scale new technologies responsibly. Sustained collaboration between governments, insurers, and industry stakeholders will be essential to achieving shared goals of sustainable growth and energy security across the region.

