

## Insurer: A Real Partner to the Transformation of the Energy Landscape?

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# Agenda

- 1. Overview of Talanx Group and HDI's energy sector involvement**
- 2. Challenges and risks in the global energy transition**
- 3. Criticism of Insurance in Energy Transition: Perceptions and Realities**
- 4. Addressing Criticisms**
- 5. Consequences for underwriting**
- 6. Conclusions**

## Overview of Talanx Group and HDI



# Talanx Group and HDI



|                                                                                                                                                 |                                                                                                                                               |                                                                                                                                |
|-------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| <b>Talanx Insurance Revenue 2024</b><br> <b>48.1</b><br>bn EUR | <b>Top 6 Insurance Group in Europe</b><br> <b>by revenue</b> | <b>Ratings</b><br><b>AA-</b> S&P<br><b>A+</b> AM Best                                                                          |
| <b>Head Office</b><br> <b>Hannover, Germany</b>              | <b>Experience</b><br> <b>120+ years</b>                    | <b>Active in</b><br> <b>175+ countries</b> |

## HDI Corporate & Specialty

### Insurance revenue

 **EUR 10.0**  
billion

### International Programmes

**5.000**

### Risk Engineering

**> 200**

### Captive

**> 160**

### Energy & Power unit

One-stop-shop for clients navigating the energy transition.

### Energy & Power unit Revenue

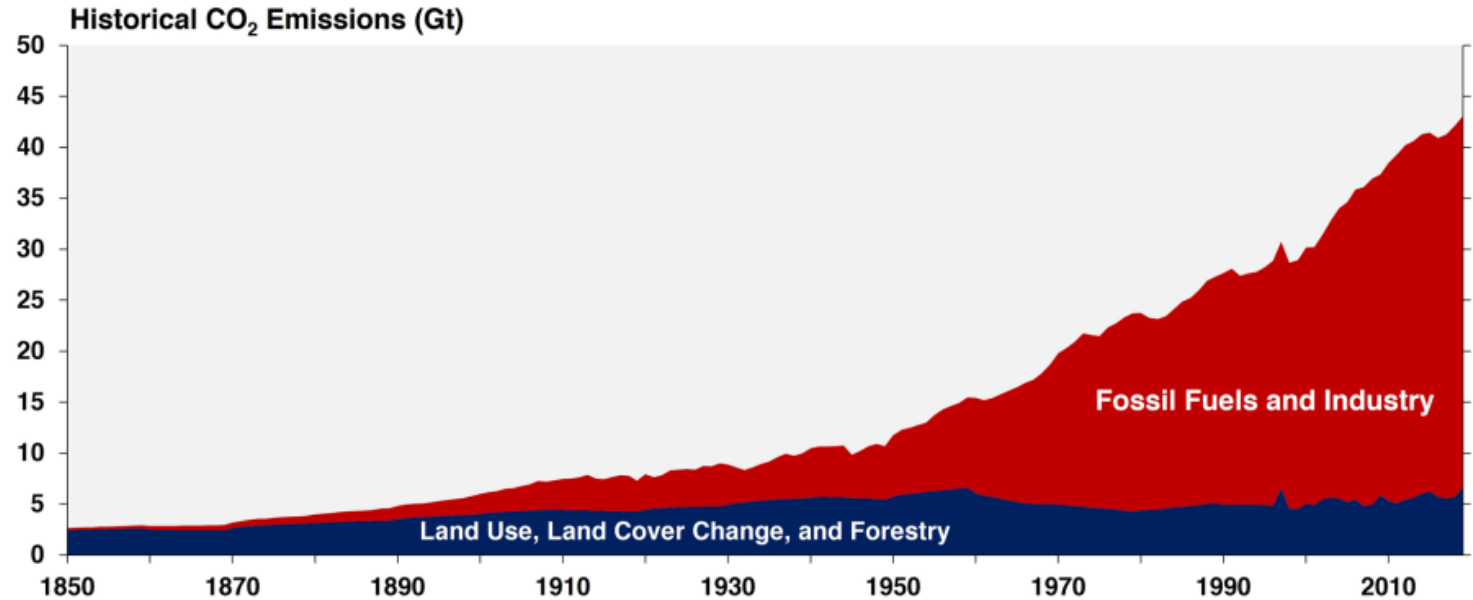
**EUR 1.0** billion (Gross)

# Climate Change Risks, Energy Mix, and the Insurer's Profit Motive

# The urgency of a Global Energy Transition

## Rising Global Emissions

Greenhouse gas emissions are rising worldwide, contributing to accelerated climate change and environmental instability.



Source: [www.epa.gov/ghgemissions/global-greenhouse-gas-overview](http://www.epa.gov/ghgemissions/global-greenhouse-gas-overview)

# The urgency of a global Energy Transition

## Intensifying Climate Risks

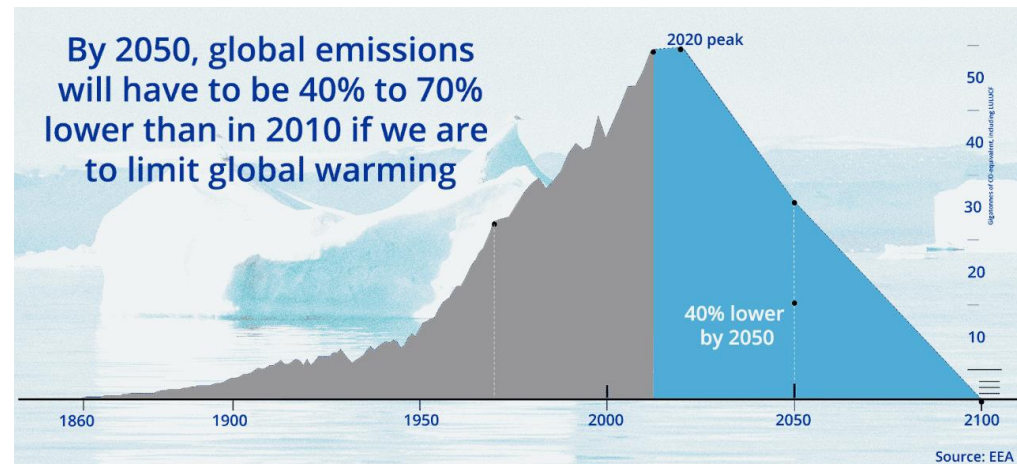
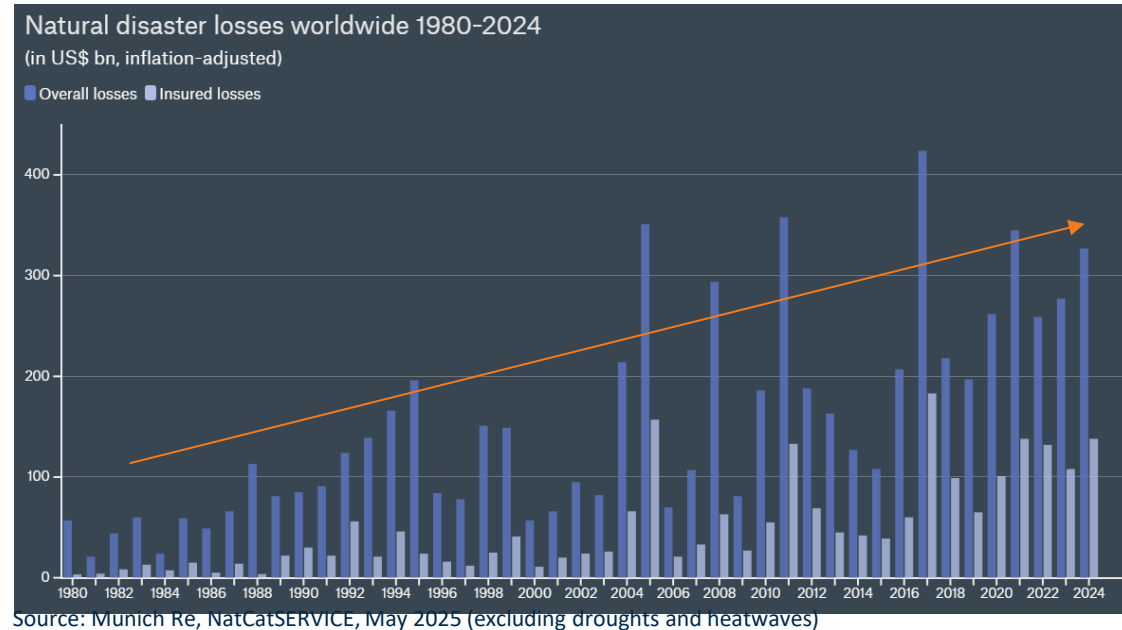
Climate-related risks are projected to intensify through 2050, affecting ecosystems, weather patterns, and communities globally.

## Financial Exposure of Insurers

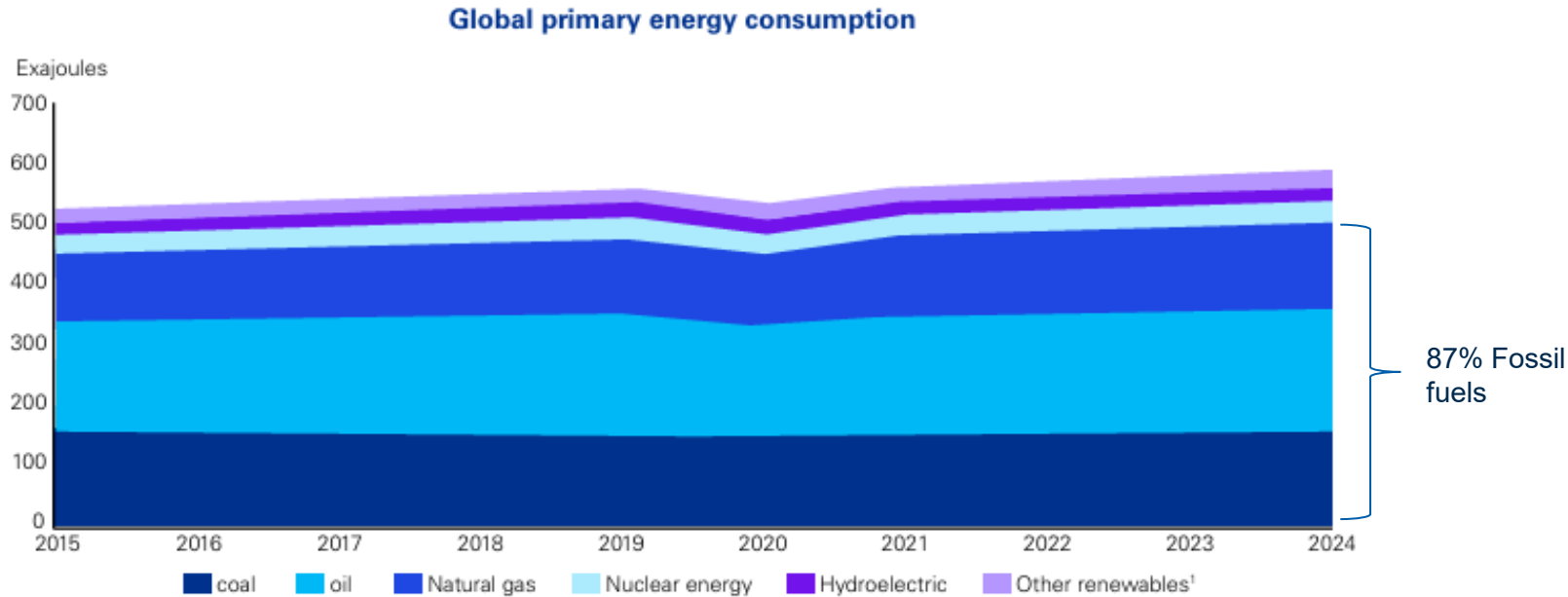
Increasing climate risks raise financial exposure for insurers underwriting energy-related assets, impacting risk management strategies. Natural catastrophes caused overall losses of US\$ 320bn worldwide in 2024.

## Combat climate change

The energy transition is essential to combat climate change by reducing greenhouse gas emissions and to ensure a sustainable and secure energy future by shifting from fossil fuels to renewable energy sources (Paris Agreement, COP28)



# Current Global Energy Consumption: The Dominant Role of Fossil Fuels



1. Includes Biofill, solar, wind, geothermal, biomass

Source: Energy Institute, in association with KPMG International and Kearney. "2025 Statistical Review of World Energy."

## 2024:

- **Oil:** 33.6% **Coal:** 27.9% **Natural Gas:** 25.2%
- **Renewables (solar, wind, etc.):** 5.6% **Hydropower:** 2.7% **Nuclear:** 5.2%

## Fossil Fuel Dominance

Fossil fuels remain the largest share in global energy (87%) consumption despite renewable energy growth.

## Renewable Energy Growth

Renewable energy sources are growing but have not yet overtaken fossil fuels in overall energy supply. In the electricity sector, the renewable energy share is forecast to expand from 30% in 2023 to 46% in 2030.

## Insurance Challenges

The energy mix creates risk profiles that challenge insurers supporting sustainable energy transitions and legacy asset exposures.

# A Disorderly Energy Transition

Global energy demand continues to grow for both renewable and fossil fuels, though the pace and pattern of growth vary significantly across regions.



- The Trump Administration strongly backed oil and gas, and early removed the federal tax incentives for renewable projects
- Europe purchasing gas from the US, thereby raising its dependency
- China has shifted from regulated tariffs to an auction-based system for purchasing renewable electricity, which, according to the IEA, affects project profitability and has led to a downward revision of the country's growth forecasts



- India: the share of non-fossil power generation capacity reached 44% in 2024. India aims for **600 GW** from non-fossil capacity by 2035 from **126 GW in 2022** driven by solar and wind
- Combined EU investment around \$250–\$300 billion in 2024, led by Germany, France, and Spain. Germany saw significant wind and solar expansion, while France advanced floating offshore wind projects
- Morocco will invest U\$32bn in Green hydrogen projects

# Insurer's Business Model: Balancing P&L Objectives with Risk Management

## Balancing Profit and Risk

Insurers aim to achieve profit targets while managing risks to maintain financial stability and sustainability.

## Evaluating Emerging Energy Risks

Assessing new risks in the energy sector is crucial for updating underwriting policies and protecting business interests.

## Influencing Policies and Investments

Risk insights guide adjustments in underwriting and investment strategies to ensure long-term insurer viability.





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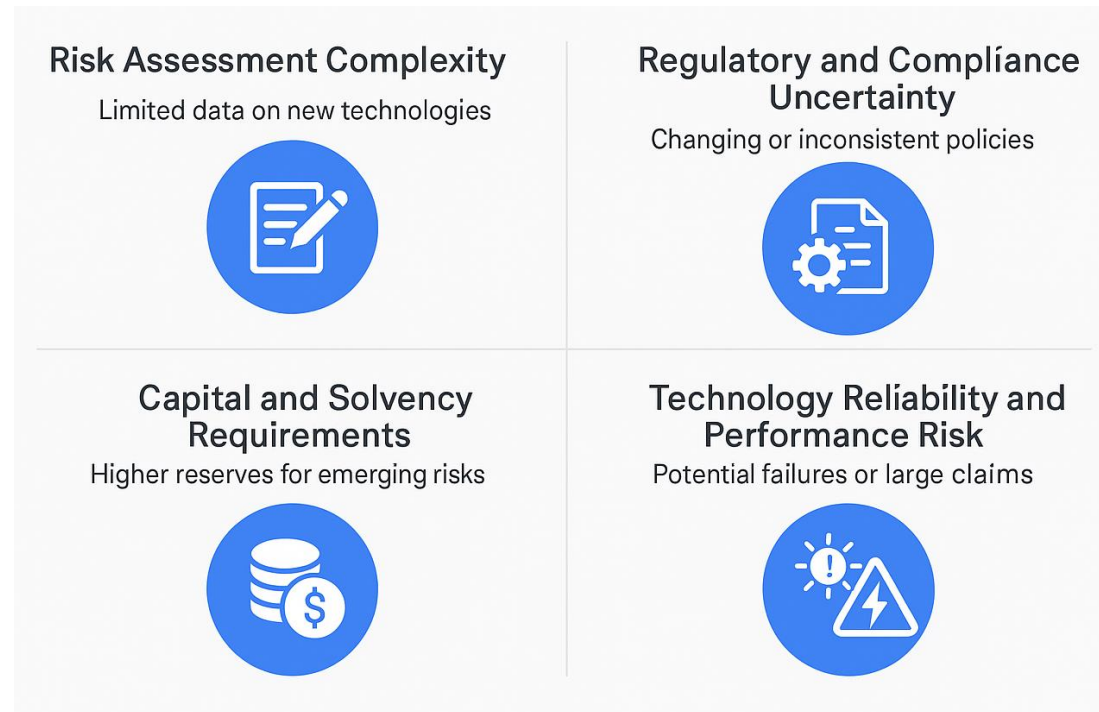
# Criticism of Insurance in Energy Transition: Perceptions and realities

# Conservatism in Insurance and Slow Innovation Adoption

Often insurance companies are criticized for their traditional approaches and slow innovation adoption. If these criticisms are not properly addressed, there could be consequences on the Energy Transition:

- Limited insurance coverage raises financing costs for renewable projects.
- Slows deployment of innovative solutions, delaying decarbonization targets

This is mainly due to several interconnected factors:



# Challenges regarding Risk Assessment of Electrical Supply

- Reliable grid operation requires a permanent balancing between consumption and production
- Renewables like wind and mainly solar are enormous challenges for the grid:
  - » **Intermittent Supply** – Output depends on weather and daylight, causing fluctuations.
  - » **Mismatch with Demand** – Solar peaks midday, demand peaks in the evening.
  - » **Grid Stability Issues** – Lack of natural inertia and frequency control from renewables.
  - » **Transmission Constraints** – Farms often far from consumption centers, requiring new lines.
  - » **Storage Needs** – Large-scale batteries or other solutions are costly and limited.
  - » **Forecasting Complexity** – Accurate prediction of output is difficult.



# Challenges regarding Risk Assessment of Electrical Supply

- **Conventional plants** are needed over the next decades to securely supply electricity
- Example 1:  
*Hot days August 2025 in Germany with high solar production during day (forced to export) and nearly windstill condition during night  
→ During the day, very low price for electricity (or even negative) and during the night, the price for electricity went up to several hundred €/MWh*
- Example 2:  
*In Germany during December, nearly no solar production and sometimes several days without wind production. Germany fired up coal and gas plants kept in reserve to stabilize supply. Old coal plants in the grid reserve are used for a few hours in exceptional situations and power can be imported from neighboring countries (e.g., Sweden, France) to meet demand.*
- **Highly fluctuating prices for electricity** and fluctuating grid hit energy intensive industries quite heavy
- **Market models** have to be adapted

# Challenges regarding Risk Assessment of Electrical Supply and Hydrogen

- Renewables very often rely on **public subsidies** requiring very cost-efficient technical configurations
- **Green Hydrogen** – projects face massive financial problems
- Conventional power plant: **erosion of knowledge** and expertise often dismissed as obsolete technology
- In Germany, at least 20 GW of new fast starting gas turbine power plants are planned, but lack of skilled operators could be a limitation factor
- **Conventional power plants:** they are facing operational change from base load to peaking not necessary matching the original design of the equipments
- **Wind offshore:** constant upscaling of technologies and huge challenges regarding installation and repairs
- The insurers have to understand if their **clients are aware of their risk operating power plants**. Therefore, there is a need for a continuous and close technical dialogue between the Risk Engineering team of the insurer, eventually the broker and the client





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## Addressing Criticisms: Industry responses and ongoing improvements

# Improving Risk Assessment Models in Insurance



## Integrate Climate and ESG Data

Assess exposure to weather events, ESG metrics



## Advanced Analytics and AI

Leverage machine learning, predictive modeling



## Scenario Analysis and Stress Testing

Simulate environmental, transition risk events



## Dynamic Risk Models

Use real-time data for risk monitoring



## Collaboration and Data Sharing

Partner with energy firms, regulators



## Incorporate Transition Risk

Evaluate policy shifts, carbon liability

# IoT & AI's Role in Improving Risk Assessment and Reducing Uncertainty

## Real-Time Monitoring

IoT devices provide continuous real-time monitoring, supporting dynamic risk assessment for insurers.

Example:

- Mitigating risk by Predictive Maintenance using IoT and AI-solutions
  - Partnership between HDI and Accure to make battery safety insurable (reducing downtime and maintenance)
  - Partnership with between HDI and Turbit onshore Wind turbine

## Enhanced Risk Assessment

Real-time data enables insurers to evaluate risks more accurately and adjust underwriting dynamically.

## Reducing Underwriting Uncertainty

IoT data **reduces uncertainty** in underwriting decisions by providing precise and timely information.



# Climate Risk Consulting

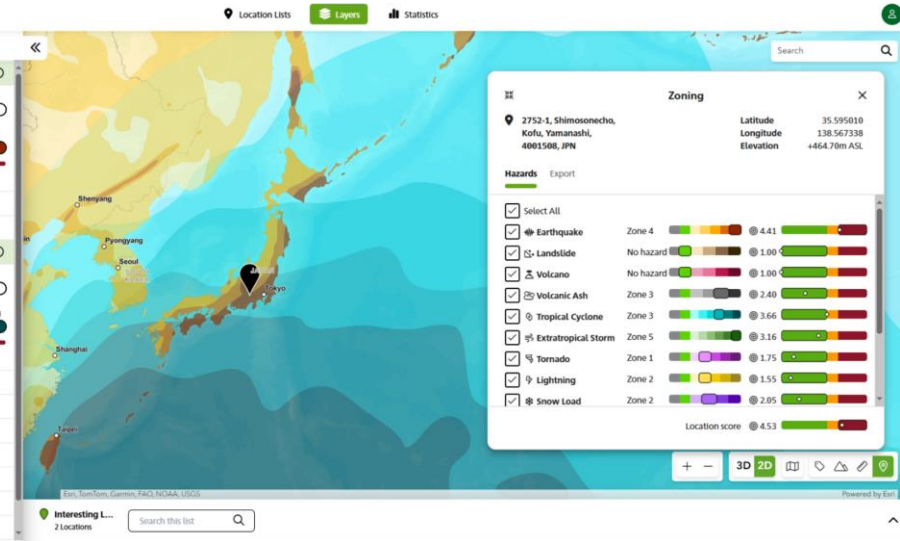
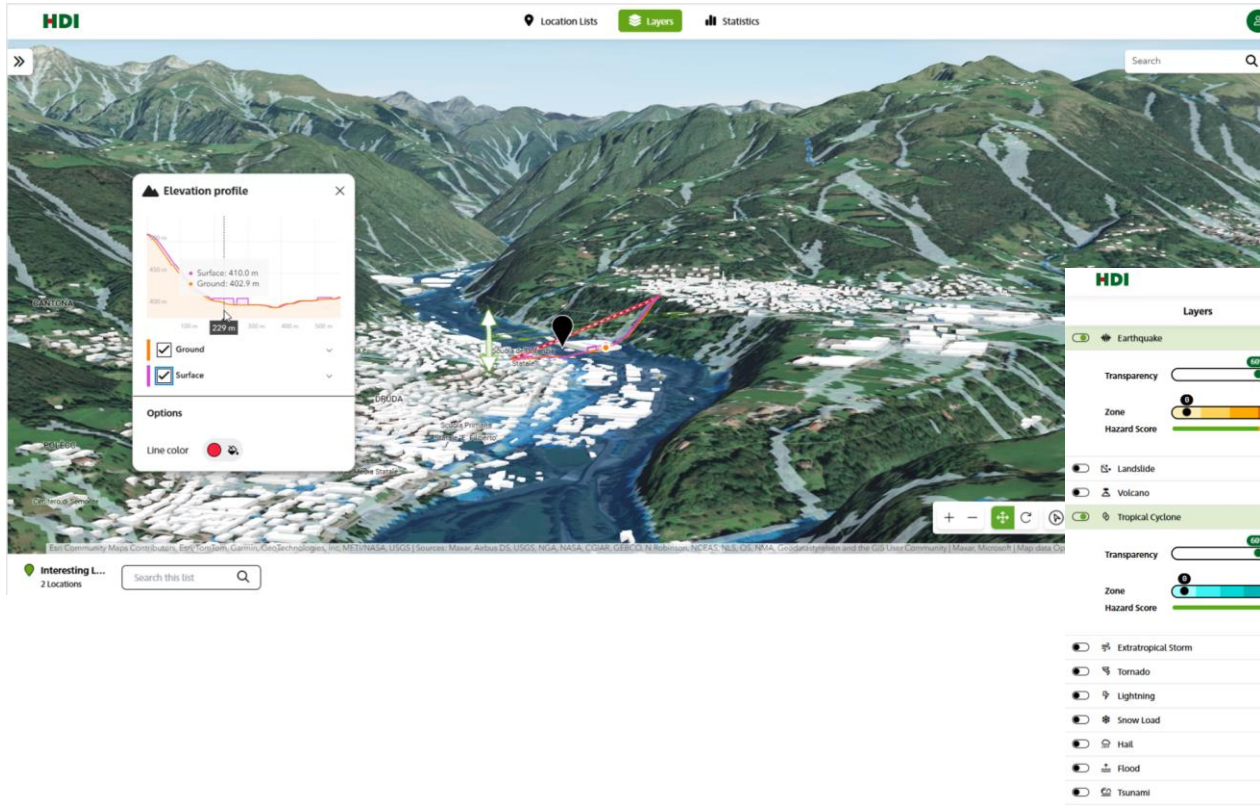
HDI Climate Risk Reporting supports companies to

- Identify climate-related hazards
- Gain insight into the future exposure towards physical climate risks of the company's locations (between now and 2100, using 3 different climate scenarios)
- Identify where to take action
- Comply with climate-related reporting obligations
- Incorporate the effects of climate change into investment decisions at locations



# Analysis of Natural Hazard: Argos 4.0 (HDI)

Reliable NatCat Assessment tools are essential for **evaluating the risks** posed by **natural disasters** such as floods, earthquakes, and storms.



The tool combine high-resolution hazard information, interactive maps, fully customisable reports, and a user-friendly interface. the tool delivers fast and, above all, well-founded risk analyses of all relevant natural hazard data. This enables HDI to help its clients quickly and efficiently identify risks arising from natural hazards and proactively reduce them. An AI location import feature significantly optimises the management of large volumes of data and the quality of location data.

ARGOS 4.0 is made available commercially by HDI to clients since 6 October 2025.



## Consequences for underwriting



# Adapt the underwriting approach to the energy transition

- to **support a comprehensive range of energy sources**, including both fossil fuels and renewables.
- to continue **assisting clients during their transition**, as they still depend on conventional energy sources, and insurance must provide **appropriate coverage** and **claim assistance**.
- to adopt a **cradle-to-grave approach** by maintaining a holistic view from construction to operational phases, is necessary to avoid any insurance gaps and align the risk appetite of the insurer between these phases.
- to **navigate regional geopolitical challenges**, it is advisable to manage a global portfolio of risks.
- to **Incorporate market trend monitoring** into underwriting plans and strategies is vital to respond effectively to client needs.





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## Conclusions



# Conclusions

- The insurance industry faces significant challenges in navigating a disorderly energy transition, characterized by:
  - Rising volatility in technology risks and resource availability
  - Increasing exposure to natural catastrophes (Nat Cat)
- To remain resilient, insurers must acknowledge that they cannot control every variable and therefore require clear, long-term policy frameworks.
- From HDI's perspective, being a real and efficient partner for the energy industry necessitates
  - **Strengthening dialogue among all stakeholders**—insured parties, brokers, insurers, and reinsurers.
  - **Adapting a holistic approach** that covers both the construction and operational phases of projects.
  - In response to regional geopolitical headwinds, **maintaining a globally diversified risk portfolio** and strike a balance between traditional fossil fuel and renewable energy risks.
  - **Implementing data-driven strategies.** This is key to reduce uncertainty and ensuring risks remain insurable. Where historical data is lacking, IoT solutions can provide real-time insights and enabling accurate monitoring of technology risks and natural catastrophe exposure which leads to a better management of risk accumulation.
  - **Offering tailored insurance solutions and risk management services** across the entire energy value chain is crucial

# Q&A



# Thank You

