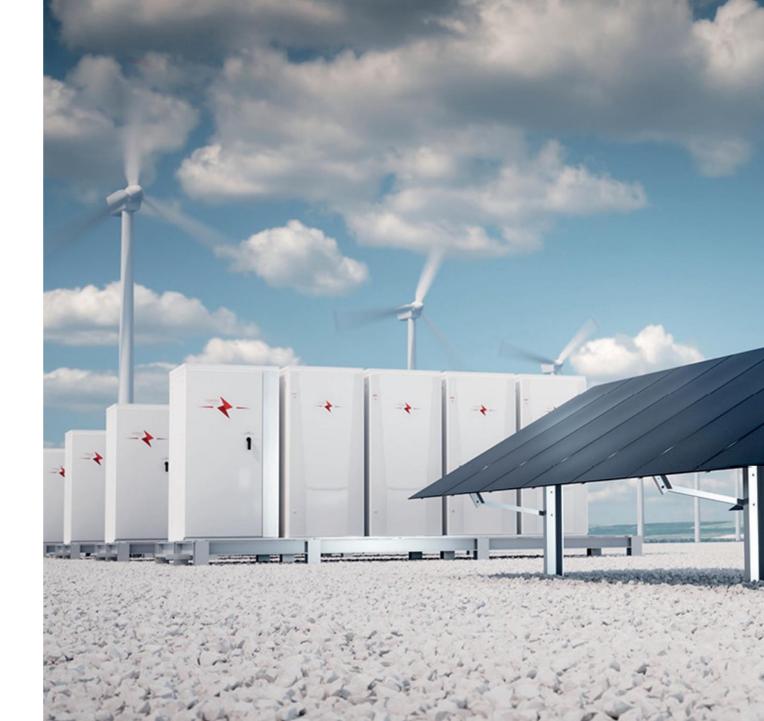


# Renewable Energy Insurance and Reinsurance

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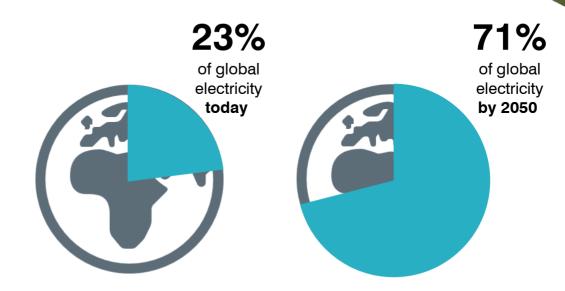
## **What Is Renewable Energy?**



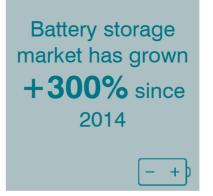


## **Next 30 Years: Substantial Growth Expected**

- Renewable energy generation now accounts for 23% of the world's global electricity supply
- By the year 2050 Bloomberg New Energy Finance estimates that generation from green electricity sources will rise to 71%...
- ...wind and solar technology alone accounting for almost 50% of this generation.
- Expected investment of USD 8.4 trillion in wind and solar generation between 2018 and 2050.
- The battery storage market is supporting the growth of renewable energy generation as it replaces ageing fossil fuel generation sources.



USD +8.4 trill
new
investments
by 2050





### Tailwinds and Headwinds in Renewables Sector

**Energy Transition** 

**FSG** 

Decarbonization

Geopolitics **Threaten Energy** Security

Ukraine war causing energy security issues

**Growing Energy** Demand

15% growth from 2021 to 2050

Developing countries leading

**Development Cost Reduction** 

Solar Power Poised to be the Cheapest Form of Newly Built Energy (BNEF)

Renewable Investments

USD 349.3Bn in 2021 (BNEF)

Investor confidence remain high

Climate Change Natural Catastrophe

**Emeraina Technologies** 

Increasingly **Prototypical** Equipment - Larger **Turbines** 

**Economic** Challenges

Rising inflation

Exchange Rates and Interest Rates Volatility

Supply Chain

Challenges for Major Development Projects. Seaways and Delays

**Talent Shortage** 

Threat of a skills gap Considerable training needs

Cyber Risk

Global ransomware damage costs \$20 billion 2022

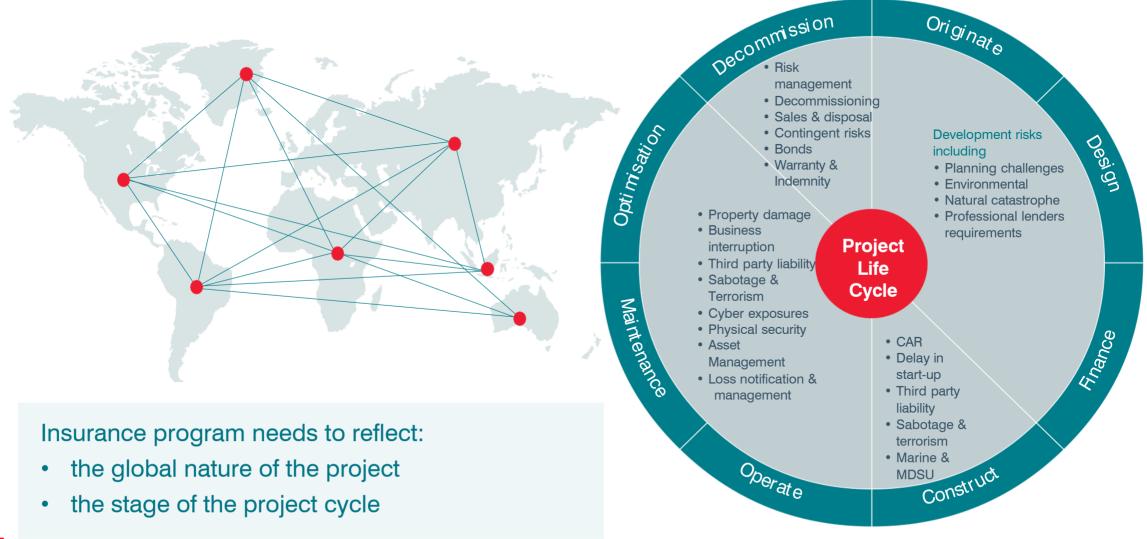


Insurance helps to mitigate the high complexity of renewable energy projects



### **Designing an Optimized Insurance Program**

Understanding the risks of each phase is crucial





## What to Pay Attention to when in Underwriting Renewables?

#### Exposure to natural catastrophes

- Unpredictable global weather patterns
- New renewable project may be deployed in locations with high nat cat exposure

#### Rapidly evolving technologies

- Challenge for insurers when assessing the risk
- Underwriters more comfortable with some new technologies and less with the others

#### Growth of Offshore wind exposures

- North Sea, parts of Asia, North America are growth areas
- Technologies often regarded as unproven
- Risk aggregations in nat cat prone areas

#### Supply chain issues

- Impact of labor shortages and inflationary pressures
- Increasing costs of construction projects
- Business Interruption exposure

Account performance and natural hazard exposures are the key underwriting criteria



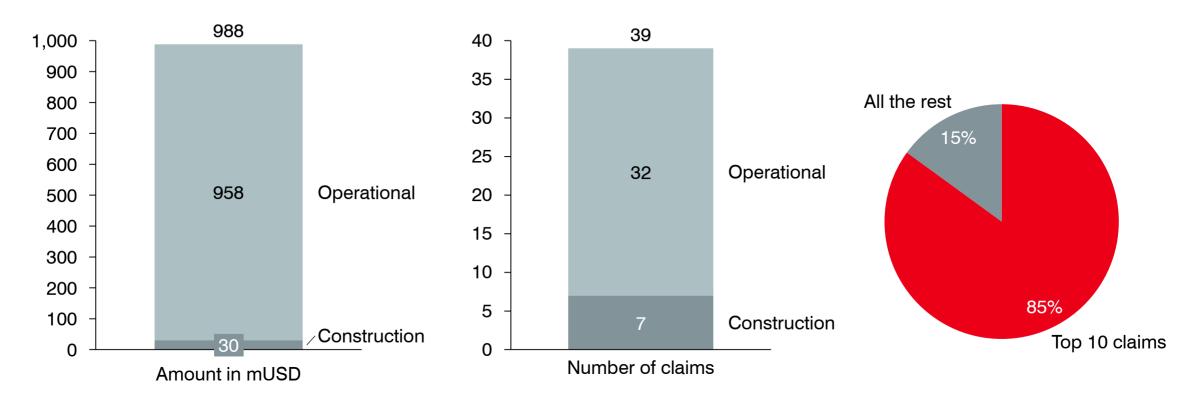
# **Top 10 Power Energy Claims in 2021 Worldwide**

Modest Contribution of Renewables

Land/ Offshor e	Country	Cause	Category	Subcategory	Claim amount in USD
Land	UK	Fire, no explosion	Power substation	Substation	440,350,000
Land	UK	Fire, no explosion	Power Thermal	Gas	83,870,000
Land	USA	Collapse	Power other	Coal	74,550,000
Offshore	Netherlands	Unknown	Power T&D	Cable	65,000,000
Land	UAE	Fatigue	Power thermal	Gas	55,000,000
Land	Argentina	Mechanical failure	Power thermal	Multifuel	37,000,000
Land	USA	lce/snow	Power renewable	Solar	21,000,000
Land	Oman	Unknown	Power thermal	Multifuel	20,698,300
Land	Thailand	Fire, no explosion	Power thermal	Gas	20,960,000
Land	USA	Mechanical failure	n's energy industry loss database for ground up los	Solar	18,340,000



### **Total 2021 Power Generation Claims**



Losses are incurred actual amounts, as reported, not indexed, sourced from the Willis Towers Watson's energy industry loss database for ground up losses of US\$1 million or more at the time of loss. Note that 2021 figures are subject to further development, both in terms of frequency and severity of losses. As at February 21, 2022.

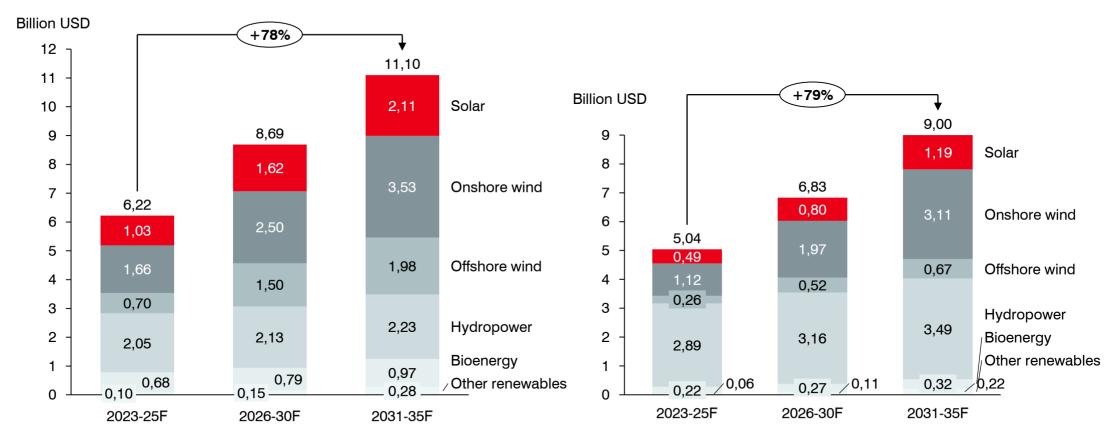
#### Large individual operational claims prevail



## **Insurance Premiums Derived from Transition to Renewable Energies**

#### **Advanced markets**

#### **Developing markets**



Source: Swiss Re Institute sigma report 5/2022

Swiss Re: USD 237bn of <u>new</u> global insurance premium by 2035 for all renewables related projects



### **Future Outlook of Renewables: Implications for Insurers**

And has FOC cable Aging assets Contingent Replacing multiple Further claims / serial Larger farms cables takes and business offshore implications failures repowering interruption longer for insurers... projects Higher limits. Marine cargo Expiring NatCat based on Local content Increased and transit Bigger manufacturer Deeper waters exposures / turbines requirements cable capacity larger levels exposures lack of wind warranties of investment increasing Push to Larger offshore Cost Multiple Floating Protection Vessel increase substations platforms transport Systems Availability premium pressures equipment rates

High complexity

professional advice is key in building the renewables insurance portfolio





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