

Environmental
Finance
**Sustainable
Investment
Awards**
2022 Winner
ESG data initiative
of the year

CARBON RISK REAL ESTATE MONITOR

Decarbonized and resilient real estate:
how to mitigate physical and transition risk

Prof. Dr. Sven Bienert 15/04/2024

PERE
Network

Decarb Forum



STRANDED ASSETS

Transition risks and potential effects on asset value

Declining market attractiveness



Declining attractiveness of submarkets due to increased vulnerability and exposure to higher costs

- **Lower demand (investors and tenants)**
- Decreasing market values
- Overall negative impact on the market environment

Tighter regulations



Legislation focused on climate change - e.g., disclosure of climate risks, CO2 pricing, carbon credits, etc.

- **Tax increases, e.g. CO2 tax**
- Energy efficiency standards
- Decrease in subsidies for certain technologies
- Costs due to publication obligations and regulation

Reputation and positioning



Stakeholder demand for real estate companies where climate risks are taken into account

- **Loss of reputation if action is too late or if no action is taken**
- Reputational risks for companies that do not sufficiently consider ESG topics in their strategy

CHALLENGES: Investment Costs vs. Stranding Costs

Rental income

- Lower demand due to CO2 obligations of commercial tenants
- Lower net rents due to high ancillary costs

Operating costs

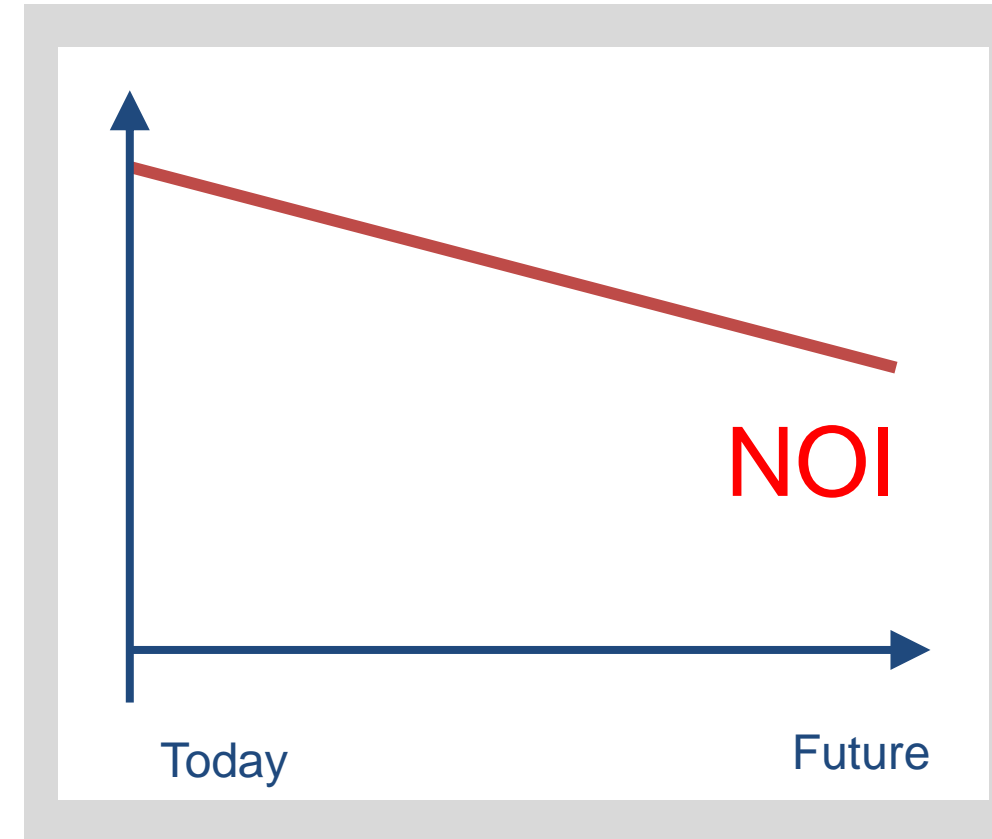
- CO2 taxes/certificates for high emission values
- Additional operating costs due to higher management costs

Investment costs

- Investments to counteract climate change
- Investment requirements due to new regulatory requirements

Borrowed capital

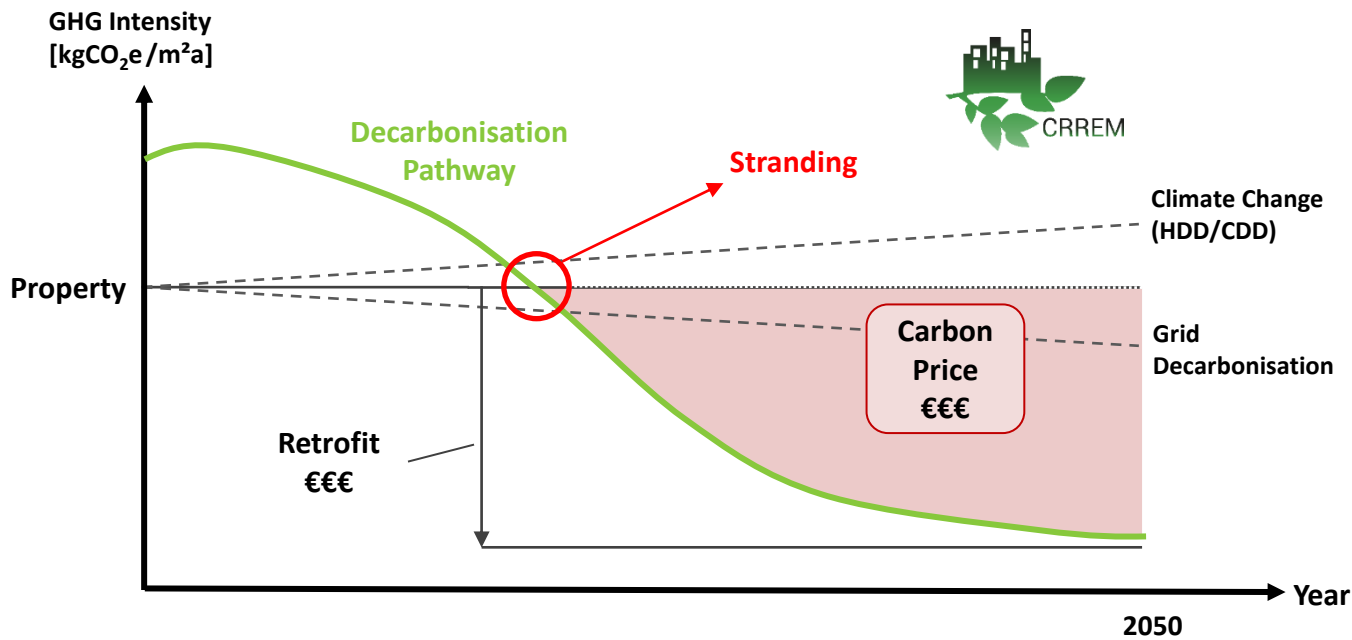
- Rising financing costs



The Carbon Risk Real Estate Monitor (CRREM) provides the real estate industry with **transparent, science-based decarbonization pathways** aligned with the Paris Climate Goals of **limiting global temperature rise to 2° C, with ambition towards 1.5° C**. CRREM considers both **operational carbon and energy intensities**.

CARBON RISK ASSESSMENT & MANAGEMENT BASED ON QUANTITATIVE PERFORMANCE DATA AND TARGET SETTING

ASSET LEVEL STRANDING DIAGRAM



DECARBONISATION PATHWAYS

Aligned with 1.5°C and 2°C global warming, country- and building type specific

+

BUILDINGS' CARBON PERFORMANCE

Energy consumption, carbon emission factors, grid decarbonisation, changed heating and cooling demand, normalisation...

=

CARBON RISK ANALYSIS

Year of stranding, excess emissions, carbon costs, energy costs, benchmarking

TRANSITION RISKS

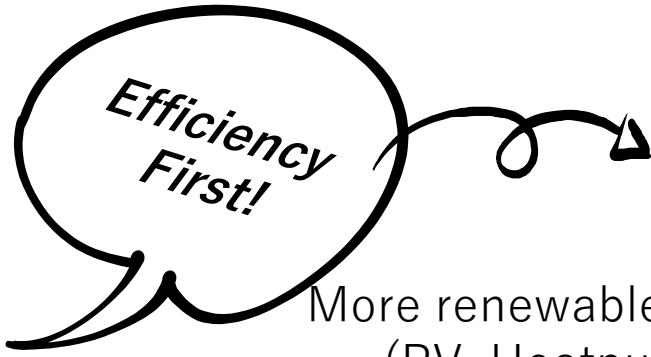
INDUSTRY ALIGNMENT –

ENSURING INDUSTRY UPTAKE & GLOBAL ACCEPTANCE (EXTRACT)



Total funds of over **6.000 bn. USD Assets under Management** (~20% of the global **CRE market**) used the tool.

Please note: numbers are based on direct contact via. the CRREM Team (excluding the tool downloads directly from the homepage and the indirect use of CRREM pathways via licensing partners).



Strategy 2

More renewable energy on-site
(PV, Heatpumps, Wind etc.)

Strategy 4

Building automation
(Smart Metering etc.)



Strategy 1

Energetic retrofit
(Insulation, techn.
Equipement etc.)

Strategy 3

Consumer behaviour
(Green Leases, User Manuals
etc.)

Strategy 5

Purchase greener electricity
(„Gold“ Standard etc.)

Getting to „Net Zero“

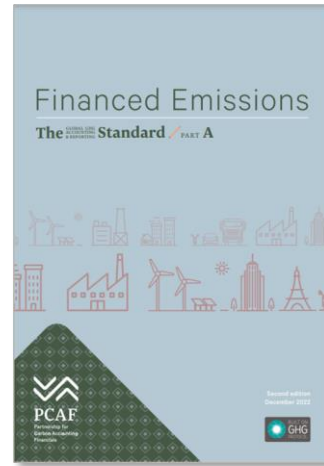
ENSURING CORRECT CARBON COUNTING

TRANSITION RISKS

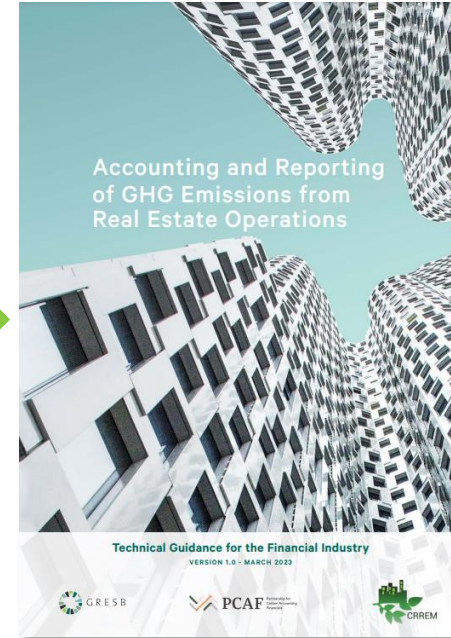
GRESB, CRREM and PCAF joined forces to provide investors and banks with the **guidance they need to measure and report** on their **financed emissions from real estate**.

Global harmonization and like-for-like comparisons are key success factors in order to **decarbonize the real estate sector** until 2050.

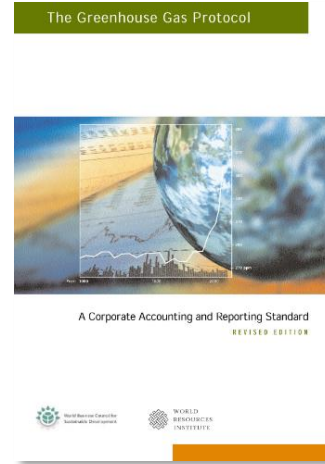
As the **race to net zero** gains momentum, the financial industry can influence the global push toward a more sustainable future. The **ability to measure and understand financed emissions has never been more important**.



Standard on Accounting and Reporting of Financed Emissions (Scope 3, Category 15)



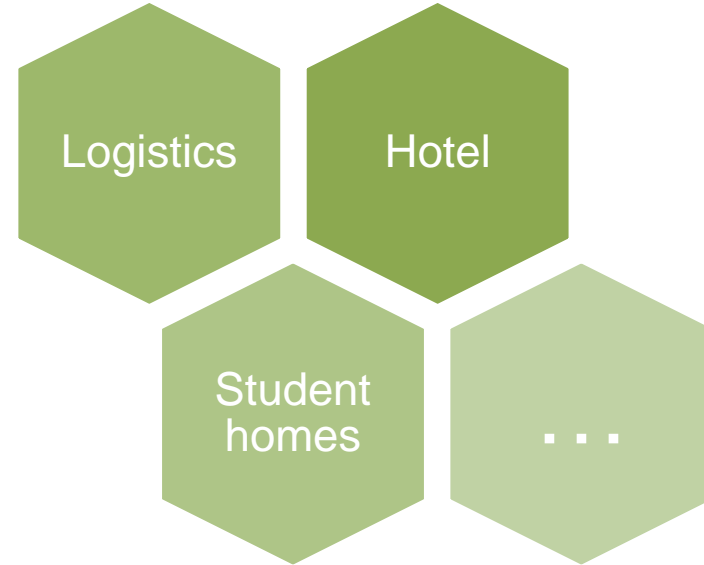
Best practice document with specifications on technical, data and standards issues



Standard on Accounting and Reporting of GHG Emissions for Corporations (Scope 1, 2 + 3, Category 13 and 15)

THE NEED FOR MORE SECTOR SPECIFIC GUIDANCE

- CRREM to publish sector guidance for logistics and Hotel.
- Collaborating directly with **big** players in the sector to ensure **best-practice on reporting and benchmarking against CRREM** and **outlining the challenges for the sector**.
- Guidance on how to **normalize asset-level data against the CRREM decarbonization pathways**.

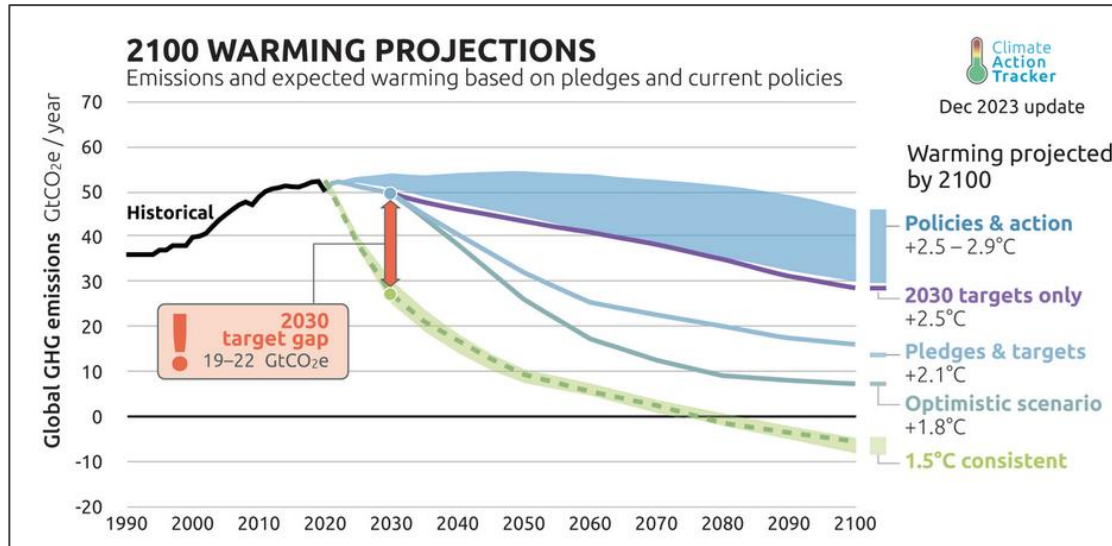


THE NEED FOR HIGHER GRANULARITY IN REGIONS

- **Focus on North America** - CRREM, ULI, and the Lawrence Berkeley National Lab (LBNL) are partnering to create more granular curves for the US and Canada.
- **Focus on Australia** - **NABERS & AGBC & CRREM** partner up to further increase update of CRREM in Australia.
- **Focus on Asia** – CRREM and AEC have launched a further “CRREM program: Net Zero Real Estate Group/Pioneers for China/HK” to increase focus and uptake.



- **Increasing consequences** following the rising temperature.
- Not all physical risks are quantifiable with the same (high) confidence.
- **More alignment and transparency regarding** the calculation of physical risk is needed.



- **Market participants have to understand the underlying assumptions** to be able to manage the risk effectively.
- The real estate industry does not seem to fully understand the impact of physical risk yet.

PHYSICAL CLIMATE RISK QUANTIFICATION TOOLS



→ Tool landscape: Comparability of results is limited – high variance of outcomes.

HOW CAN WE TACKLE THIS PROBLEM FOR THE RE INDUSTRY?

Multi step approach:

Current stage

Qualitative



1. Extensive literature review to identify relevant characteristics.



2. Development of questionnaire for both providers and users.



3. Interview sessions.

Quantitative



4. Development of fictitious pan-European real estate portfolio



5. Quantification of two physical risks with multiple tools for the portfolio.



6. Analysis of results.

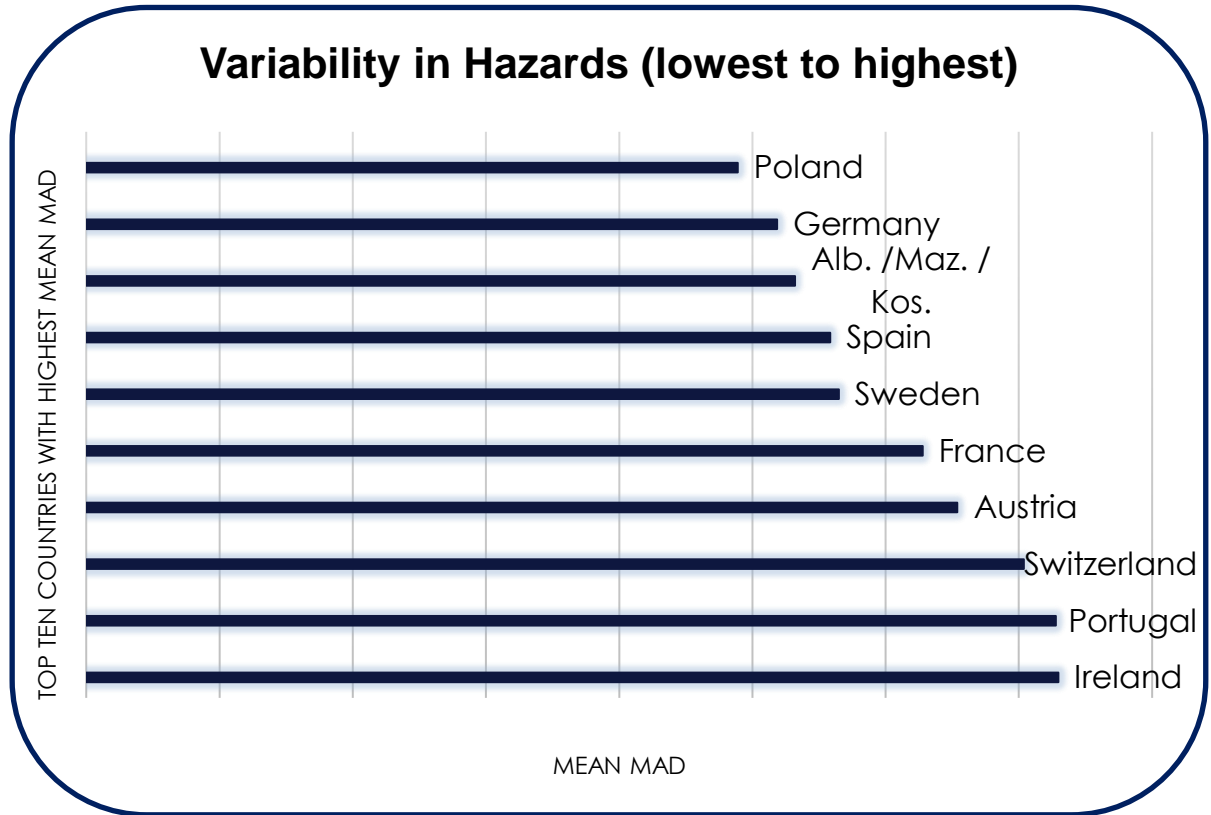
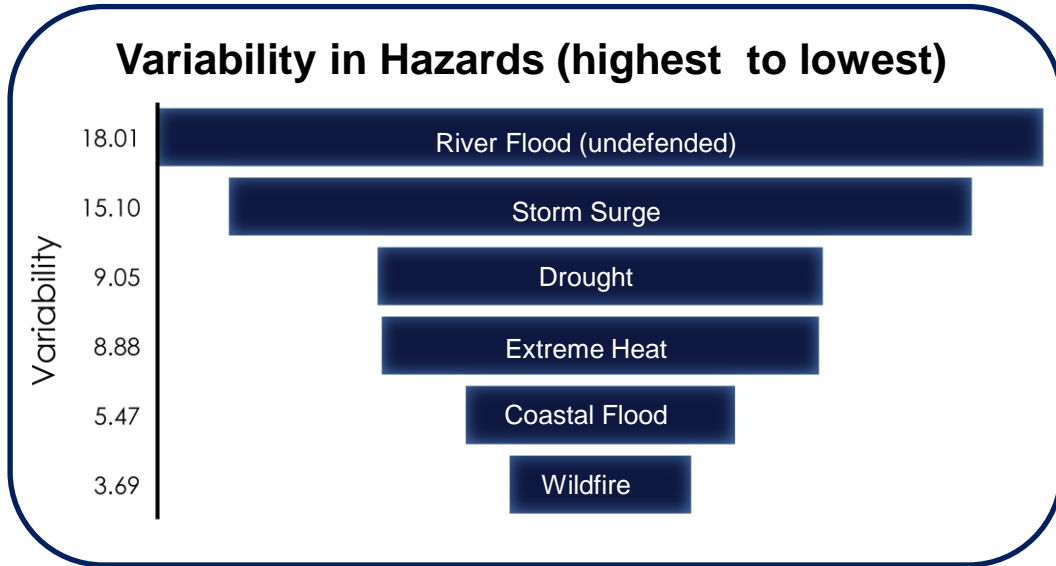


TOOL RESULTS

- 360 Assets total in the largest cities in every country in Europe
- Randomized location, size, value, asset type (office, residential) and height of every asset
- Fed into all tools cooperating
- Quantification for different scenarios, risks and projections
- → Same input for every provider



VARIABILITY IN THE OUTCOMES





CRREM | CARBON RISK REAL ESTATE MONITOR

info@crrem.eu WWW.CRREM.EU / WWW.CRREM.ORG

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INSTITUTE FOR REAL ESTATE
ECONOMICS