

8th International
Conference on
BIG DATA
& Data Science for Official Statistics

BILBAO 2024

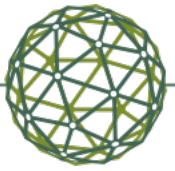
Informing Climate Change and
Sustainable Development Policies
with Integrated Data

BILBAO. SPAIN **10-14 JUNE 2024** **#UNBigData2024**

Towards climate-related indicators

Kitty Rang – De Nederlandsche Bank
Sustainable Finance Statistics



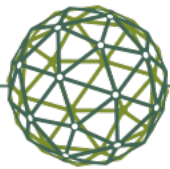


Why is climate change relevant for central banks?

Behind the strategy review: Climate change



EUROPEAN CENTRAL BANK | EUROSISTEM



Climate change is a priority in several policy areas

Economic analysis

The ECB ensures that **climate change and mitigation policies are accounted for** in its macroeconomic models, staff projections and risk assessments, and assesses their **impact on monetary policy** transmission

Monetary policy

The ECB includes **climate change considerations in monetary policy operations** in the areas of disclosure, risk assessment, collateral framework and corporate sector asset purchases

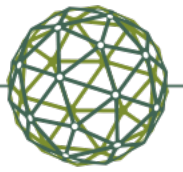


Banking supervision

Supervisors integrate **risks emerging from climate change and environmental degradation in supervision**, in order to ensure that banks are able to manage these risks properly.

Financial stability

The ECB identifies, measures and assesses the **risks posed to the financial system by climate change**, also to inform public debate, market participants and policy makers



One of the key actions is the development of climate change-related indicators



Navigating the transition to a green economy



Addressing the increasing physical impact of climate change



Advancing work on nature loss and degradation

H1/2024

H2/2024

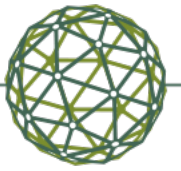
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H2/2025

Climate-related data

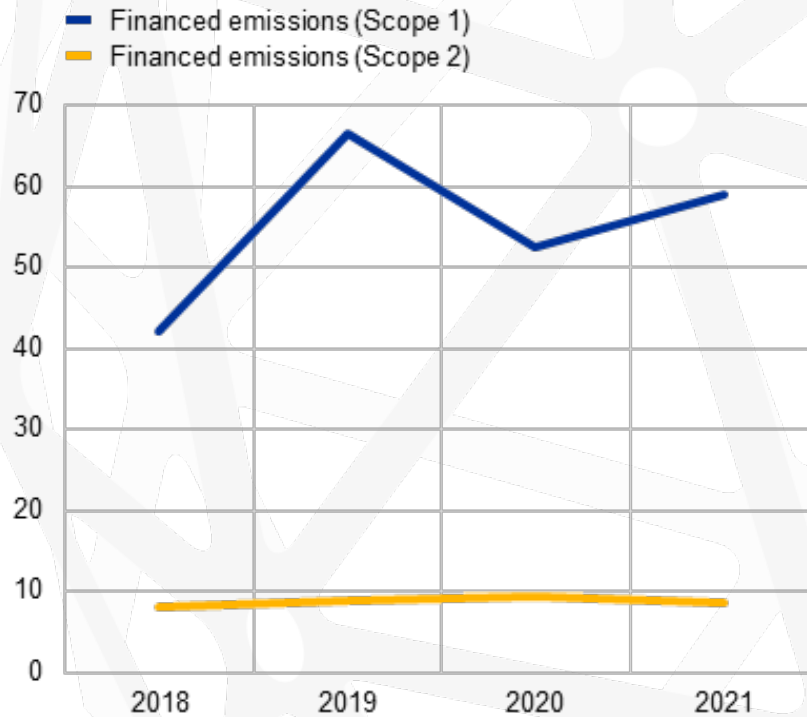
Regularly expand and release updates of climate change-related indicators

Acquire and provide climate-related data and integrate climate data points into the ECB's own data collections

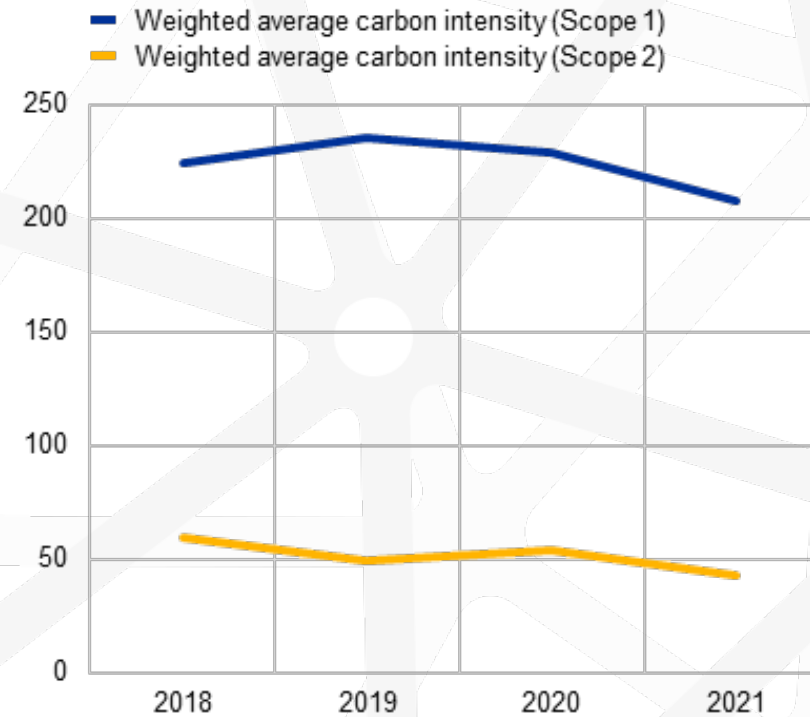


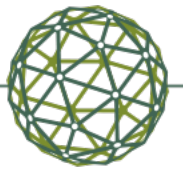
Carbon emission indicators link financing and corporate emissions

Financed emissions: absolute indicator (million tonnes of CO2 emissions)

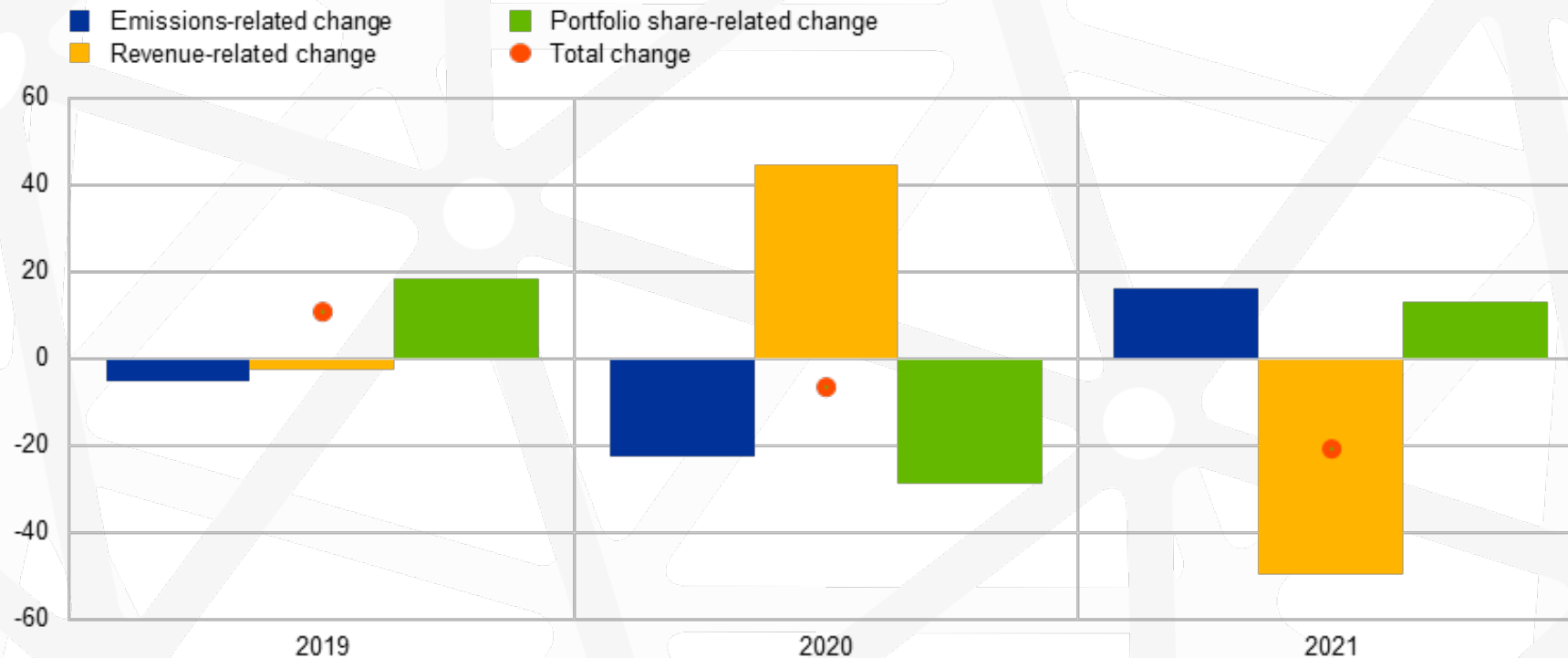


Weighted average carbon intensity: relative indicator (tonnes of CO2 emissions per million EUR of revenue)

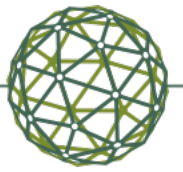




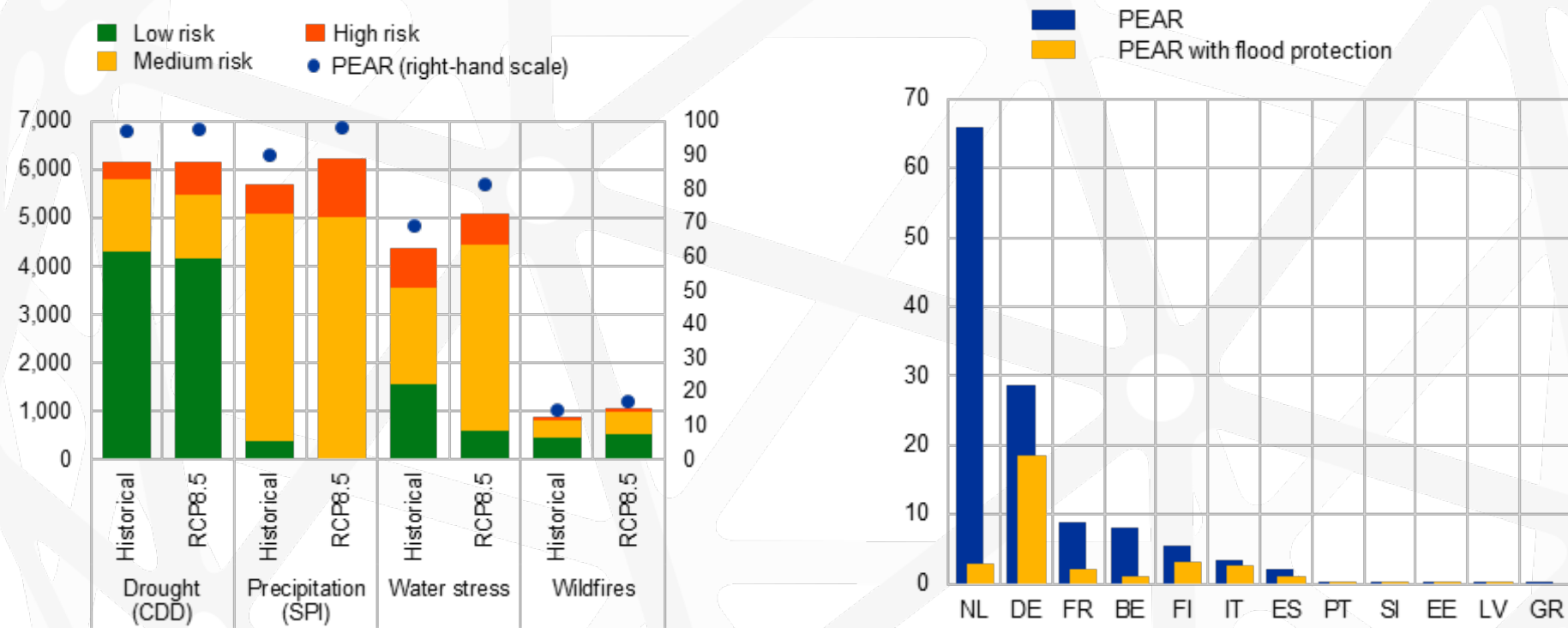
Carbon emission indicators link financing and corporate emissions



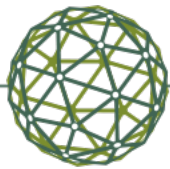
- Decrease in emissions and revenue from 2019 to 2020 → could be due to disruptions of the economy from pandemic-related restrictions.
- Increase in emissions and revenue from 2020 to 2021 → could be due to economic recovery following pandemic-related restrictions.



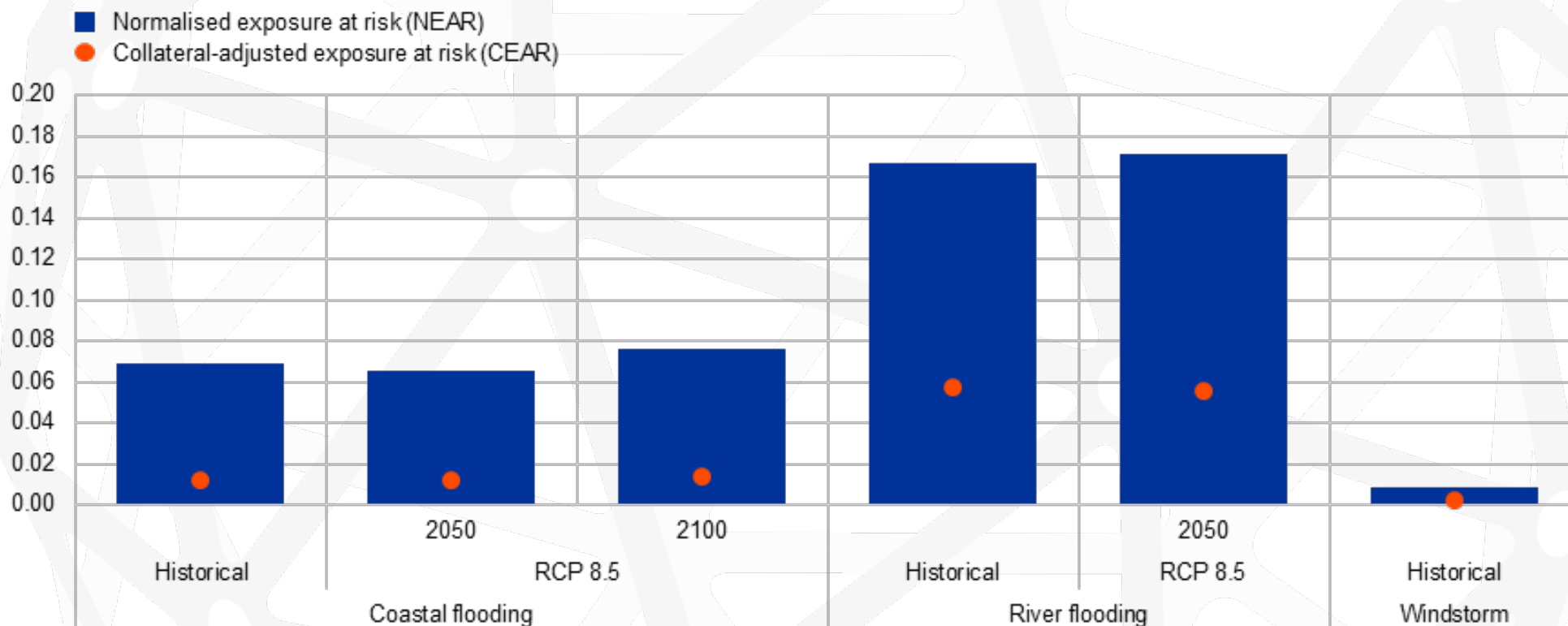
Physical risk indicators capture the exposure to companies located in areas that are susceptible to natural disasters



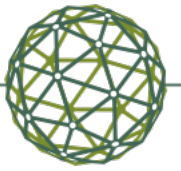
The Potential Exposure At Risk captures the share of the portfolio that is susceptible to a physical hazard, regardless of the hazard's intensity or frequency.



Physical risk indicators capture the exposure to companies located in areas that are susceptible to natural disasters



The Normalised Exposure At Risk estimates the expected loss in the bank portfolio, attributed to the inability of debtors to fulfil their repayment obligations as an aftermath of a natural disaster.



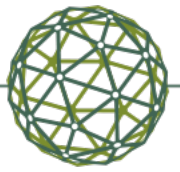
Current challenges and future work

Carbon indicators

- Granular emission data
- Scope 3 emissions
- Forward-looking indicators

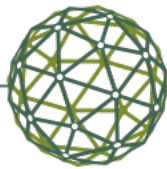
Physical risk indicators

- Location of local units and collateral
- Compounding risk
- Insurance against natural hazards



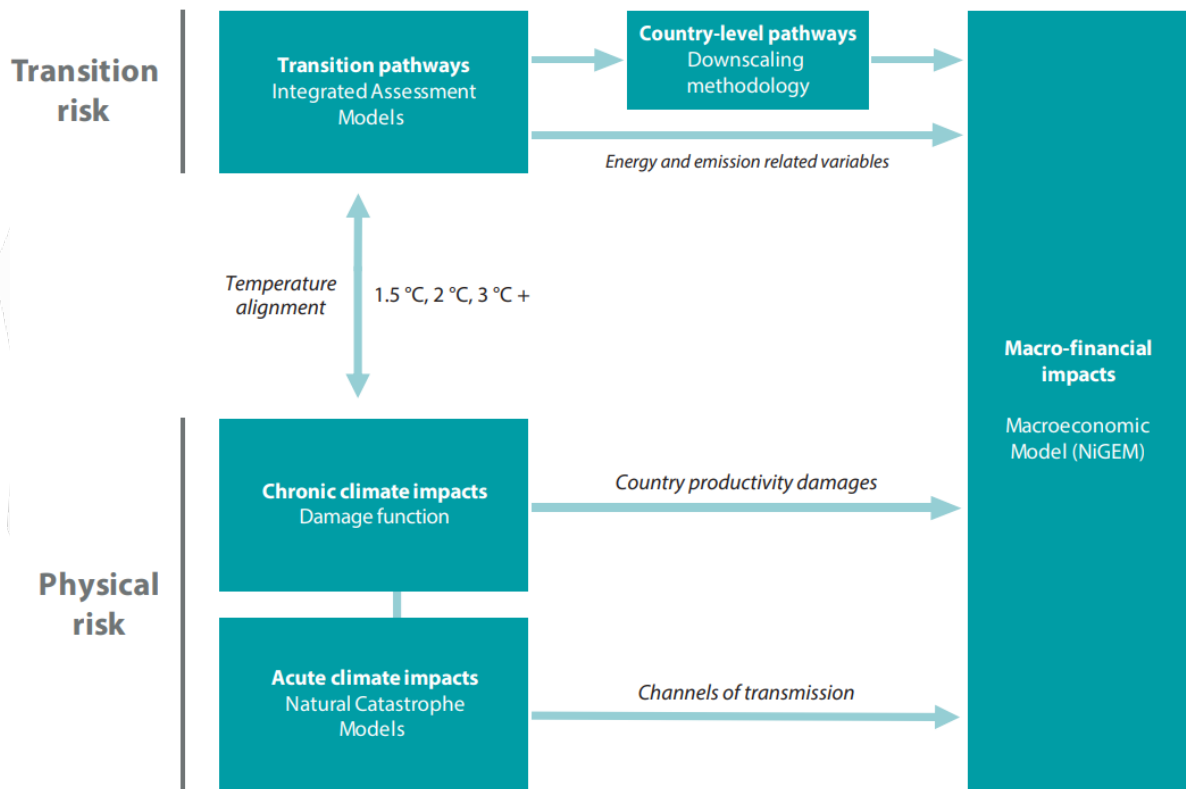
Climate-related indicators vs NGFS Scenarios

- Bottom up approach
 - Granular data on portfolios / financials / emissions
- Micro perspective
 - Focus on the financial sector
 - Historical trends (carbon) and forward-looking risk assessment (physical risk)
- Indicators
 - Transition risk (carbon) and physical risk separately
 - Observed financed emissions, carbon intensity, exposure at risk, etc.
- Climate and economic modelling
 - Different scenarios based on different policy/emission pathways
- Macro perspective
 - Focus on the economy as a whole
 - Long-term perspective
- Scenarios
 - Internally consistent combination of transition/physical risks and macro-financial developments
 - Range of plausible futures captured by different model outputs



NGFS modelling and scenarios framework

NGFS suite of models approach



NGFS scenarios framework in Phase IV

