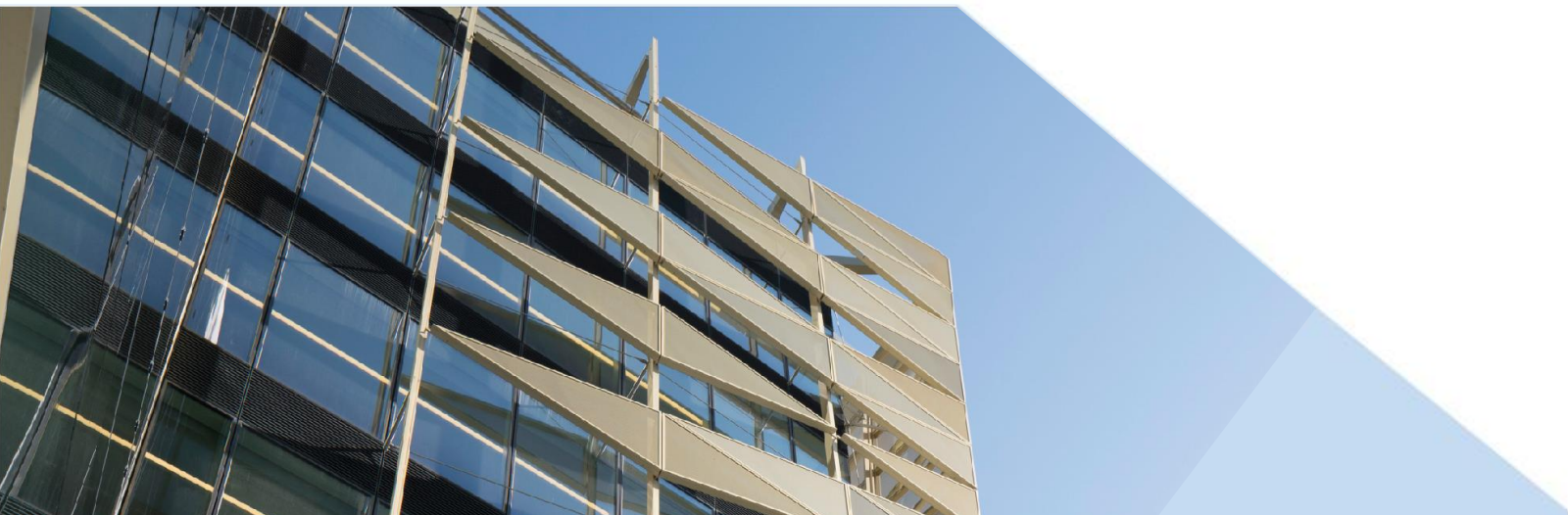




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Central Bank of Ireland

Eurosystem



Climate Change and the Irish Financial System

Philip R. Lane, Central Bank of Ireland
Monsignor Pádraig de Brún Memorial Lecture
NUI Galway, 5th February 2019

Our Mission Statement

- “The Central Bank of Ireland serves the public interest by safeguarding monetary and financial stability and by working to ensure that the financial system operates in the best interests of consumers and the wider economy.”
- Cannot fulfill this mission without addressing implications of climate change for the economy and the financial system.



Our Mandate

- Monetary and price stability (eurosystem)
- Financial stability (macroprudential authority; resolution authority; liquidity policy; crisis management)
- Prudential regulator (banks, insurance companies, investment firms)
- Conduct regulator (consumer protection; investor protection; orderly markets)
- Economic advice and analysis
- Leadership role



Two Dimensions of Climate Change

- Coping with increased frequency of severe weather events and impact of rising temperatures on macroeconomic performance
- Managing and financing the carbon transition
- Goal: climate resilience
- Economy-wide nature of climate change: central role for financial system

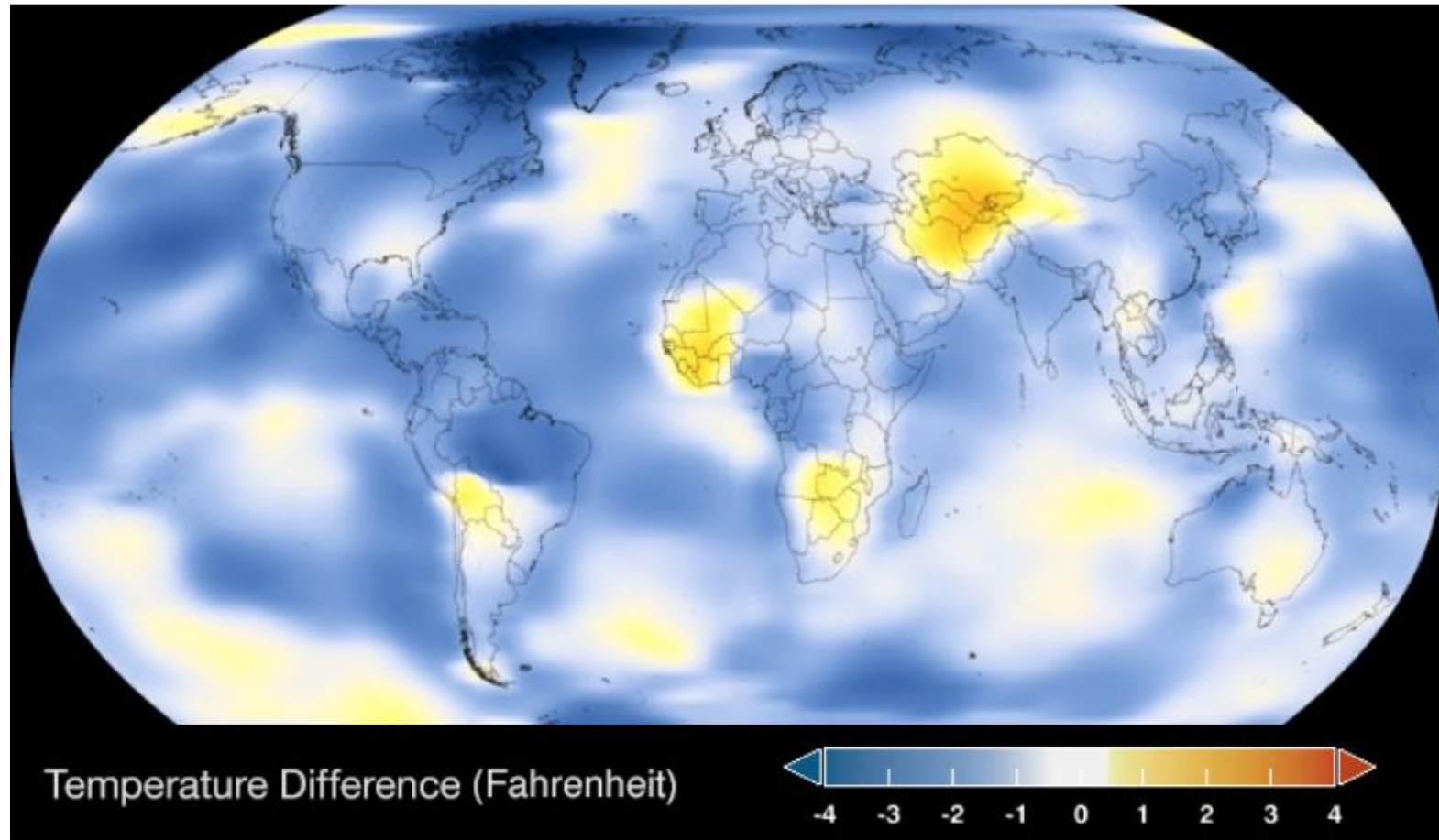


Current Assessment

- EU Target: 40 percent reduction in emissions by 2030 (relative to 1990); carbon neutrality by 2050
- Tripling of weather-related insurance events since the 1980s: annual average insurance payouts increased from \$10 billion to \$55 billion
- \$900 billion a year in mitigating investments (IPCC): about one percent of 2017 world GDP
- Climate Change Advisory Council: raise carbon tax from €20 to €80 by 2030; current GHG emissions rising – adjustment needed
- Desmond (EPA, 2018): enabling framework in place but system-wide implementation needs coordination and leadership



1917 – Five Year Average Variation from 1951-1980 Baseline



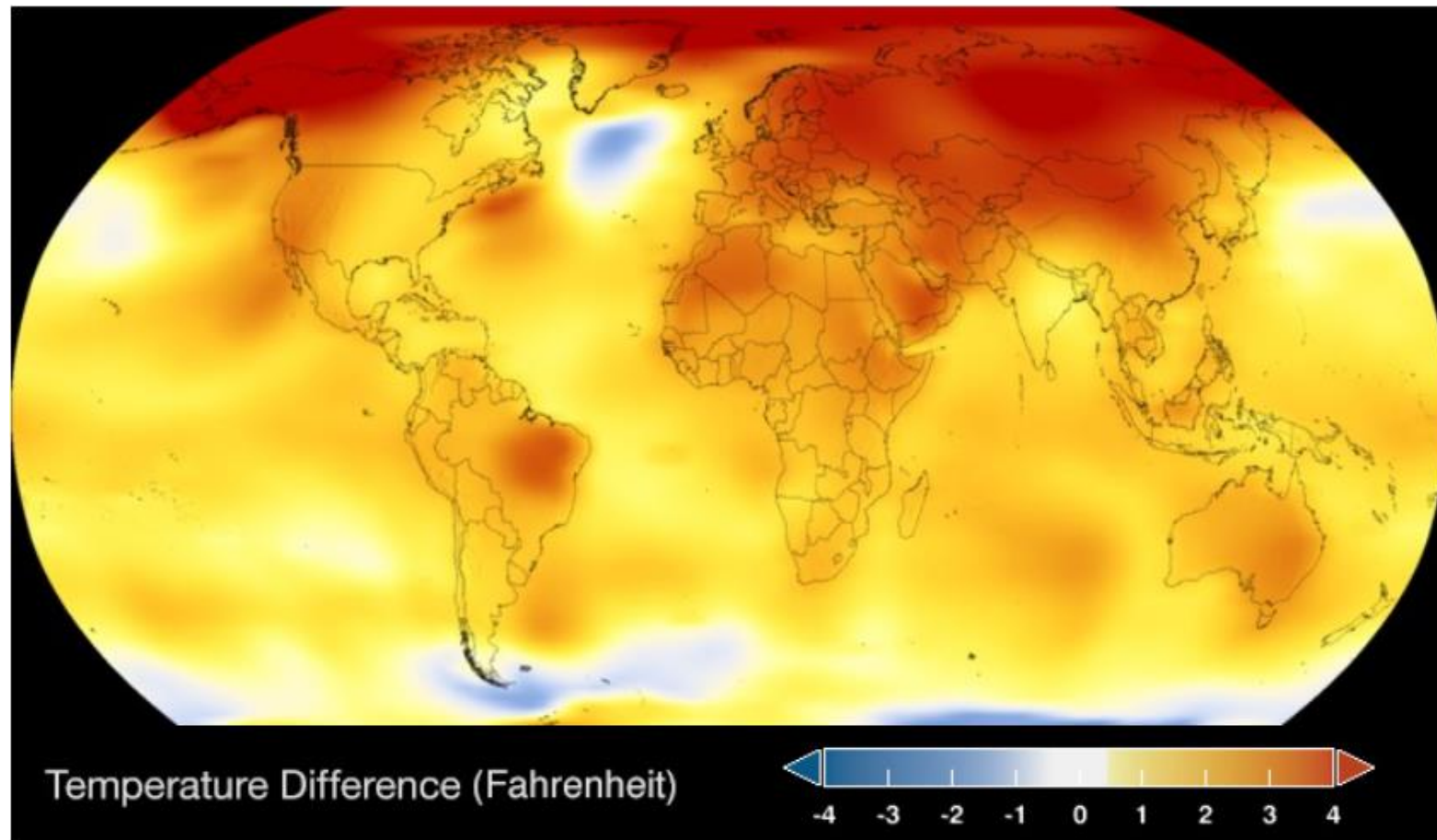
Source: NASA/GISS



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2017 – Five Year Average Variation from 1951-1980 Baseline



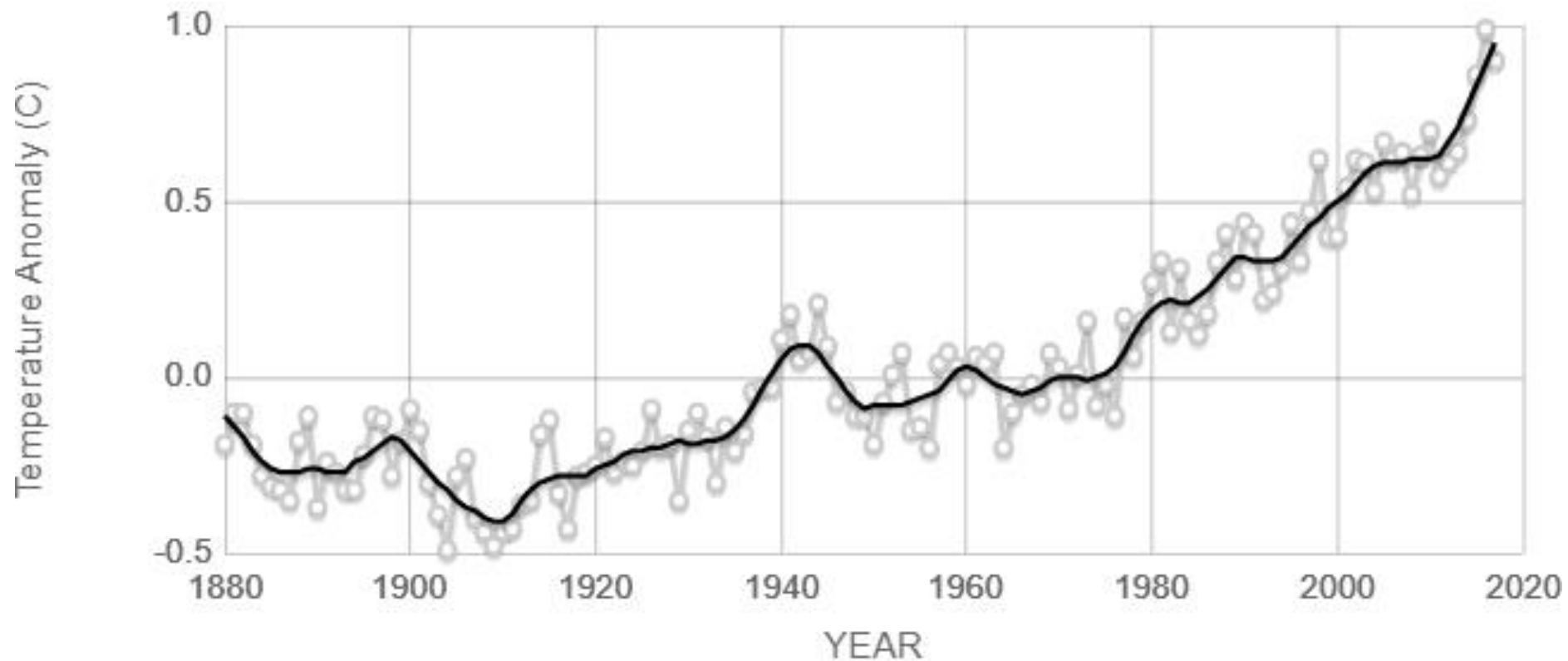
Source: NASA/GISS



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Global Land-Ocean Temperature Index – Change Relative to 1951-1980 Baseline



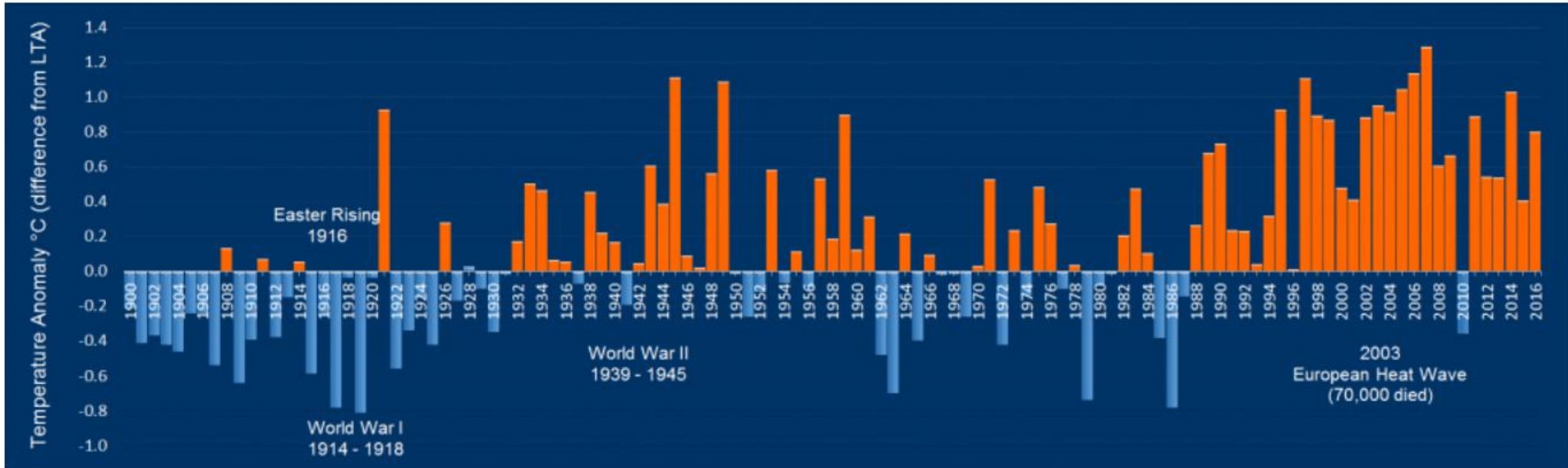
Source: NASA/GISS



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Irish Observations Since 1900 Compared to Long Term Average (LTA)



Source: Met Éireann

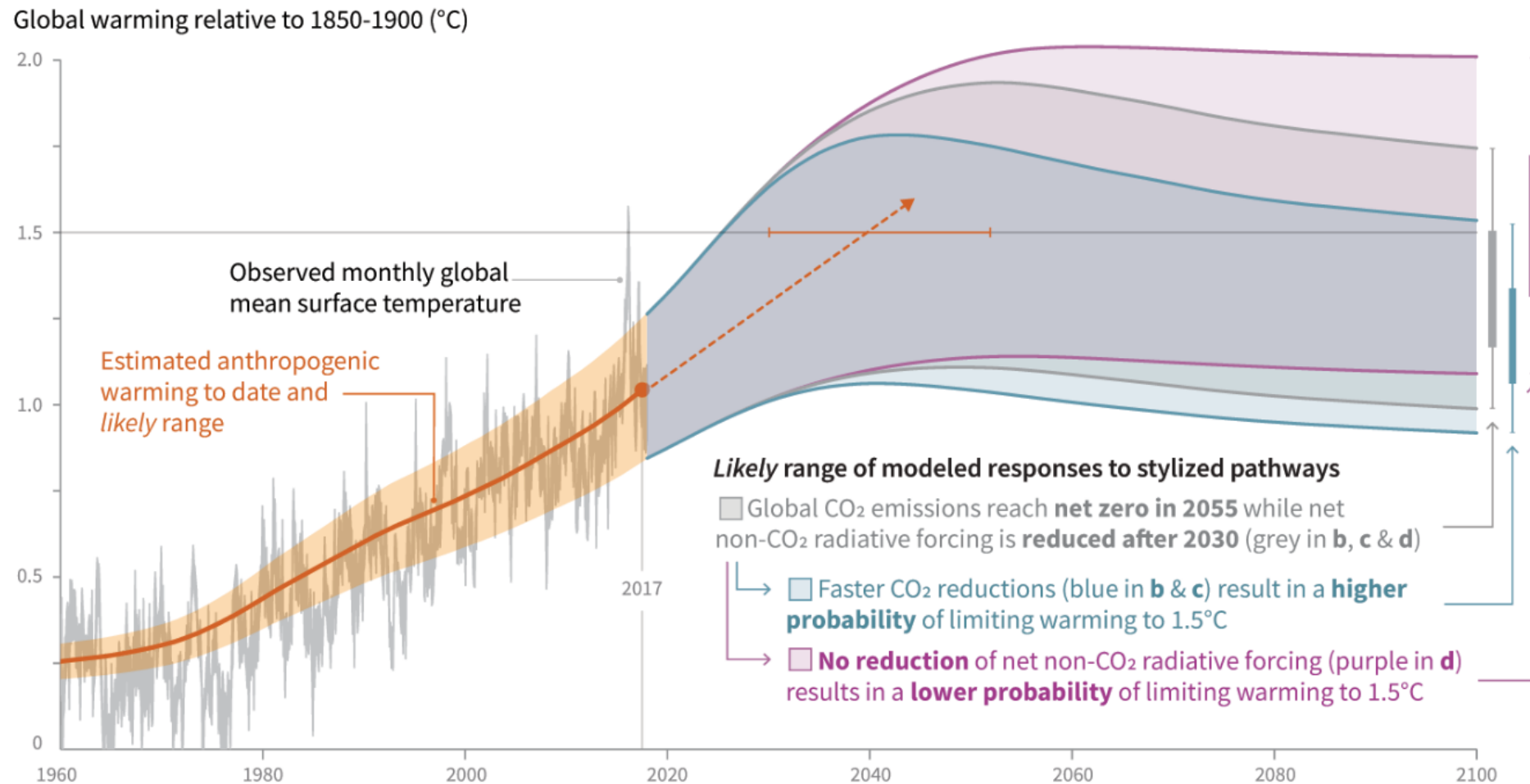
Note: Long Term Average (LTA) refers to 1961-1990 period



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Observed Global Temperature Change and Modelled Responses to Stylised Anthropogenic Emission and Forcing Pathways



Source: United Nations Intergovernmental Panel on Climate Change

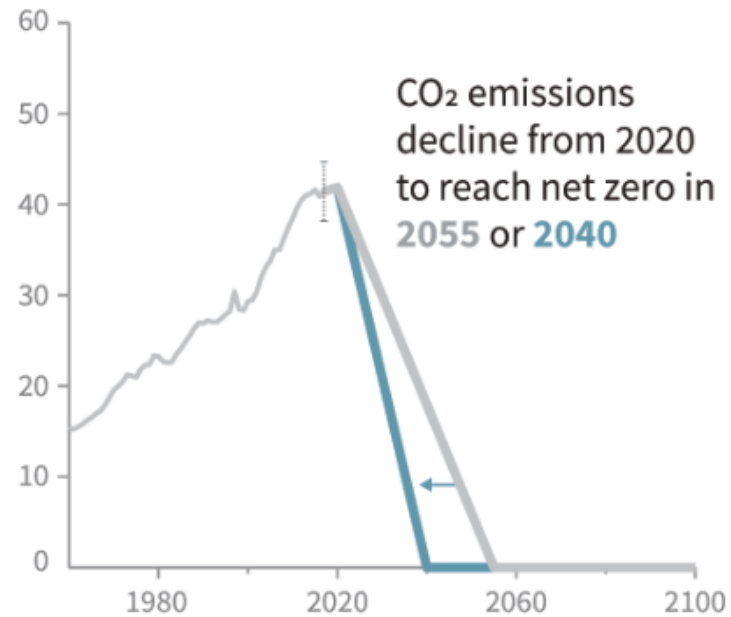


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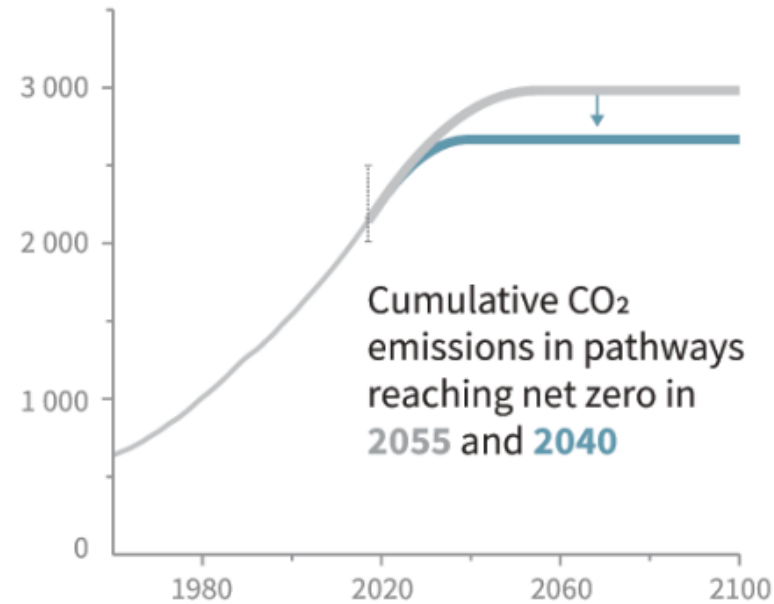
Stylised net global CO₂ emission pathways

Billion tonnes CO₂ per year (GtCO₂/yr)



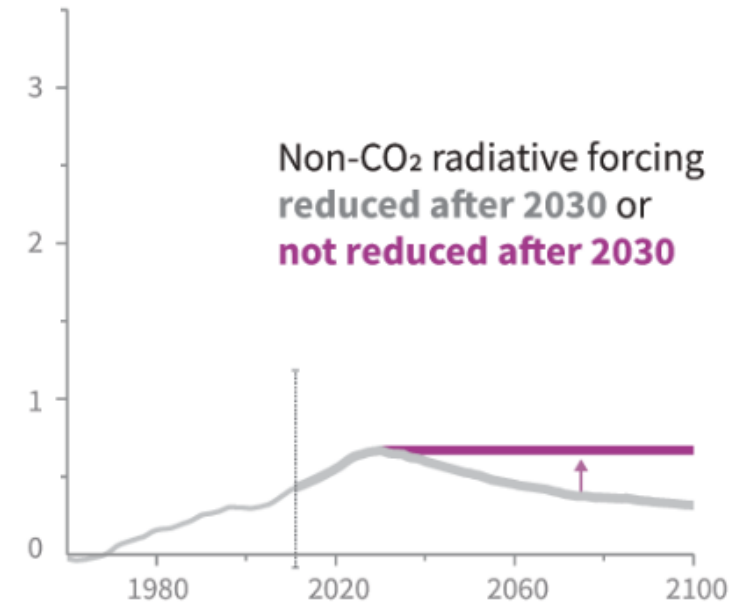
Cumulative net CO₂ emissions

Billion tonnes CO₂ (GtCO₂)



Non-CO₂ radiative forcing pathways

Watts per square metre (W/m²)



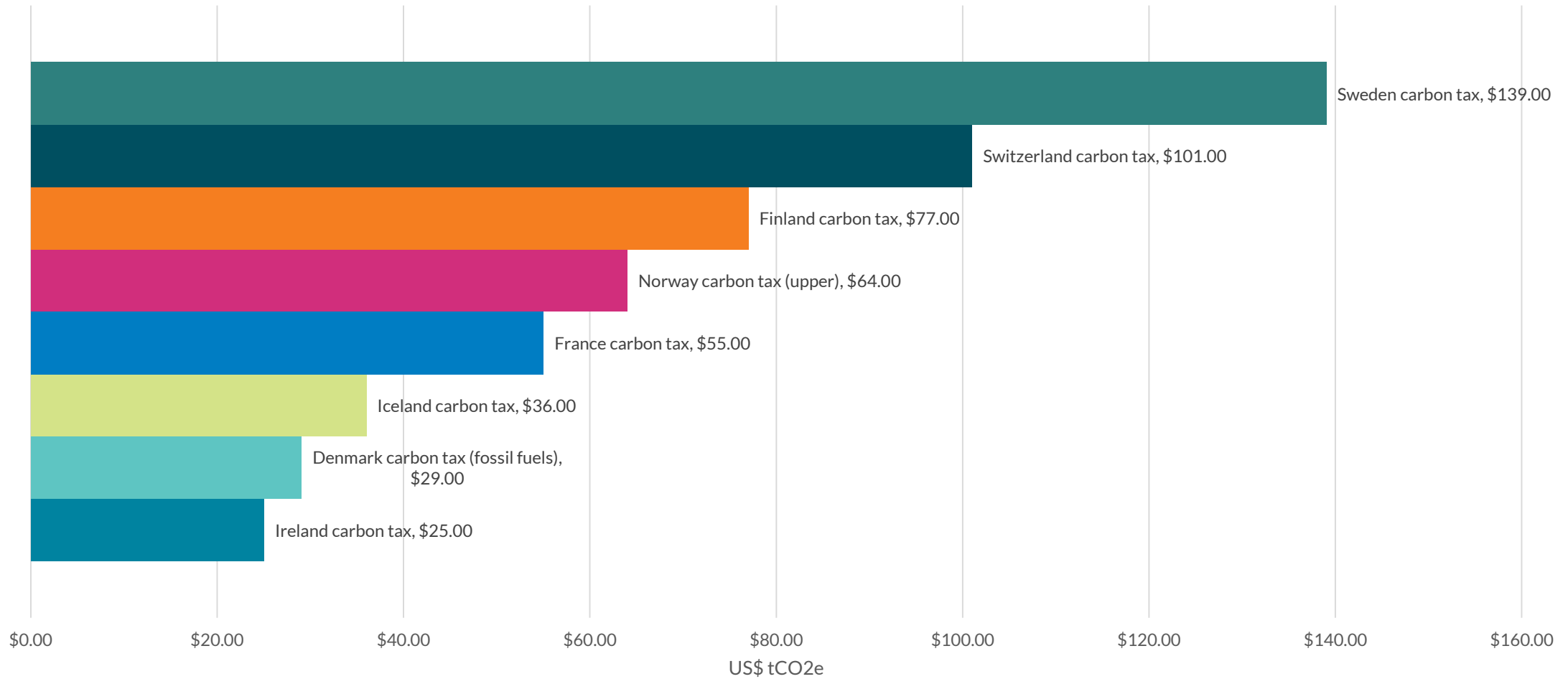
Source: United Nations Intergovernmental Panel on Climate Change



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Prices in Implemented Carbon Pricing Initiatives



Source: World Bank and Ecofys. 2018. "State and Trends of Carbon Pricing 2018 (May)", by World Bank, Washington, DC.



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Energy Producers

- Increasing share of renewables in production
- 2025 closure of coal-using Moneypoint
- Peat as an input?
- Comparative challenge less than in countries with heavy coal and oil dependence



Households

- Retrofitting homes. Multi-year payoff: home loans (plus subsidies)
- More expensive and curtailed home insurance: 'rainy day' savings
- Climate factor in house prices
- Depreciation path for diesel- and petrol-fuelled cars; switching rate to electric-powered cars: optimal speed
- Exposure to market risk (defined contribution pensions; savings plans)
- Macroeconomic risk



Non-Financial Corporates

- Retrofit offices, retail outlets; commercial properties
- Commercial insurance: price/coverage
- Defined-benefit pensions
- Switch to low-carbon technologies: across sectors; incumbents versus new entrants; switch in preferences; debt versus equity financing
- Construction sector: key role in retrofitting; training; scale
- Agriculture sector: GHG emissions; afforestation; biomass fuel

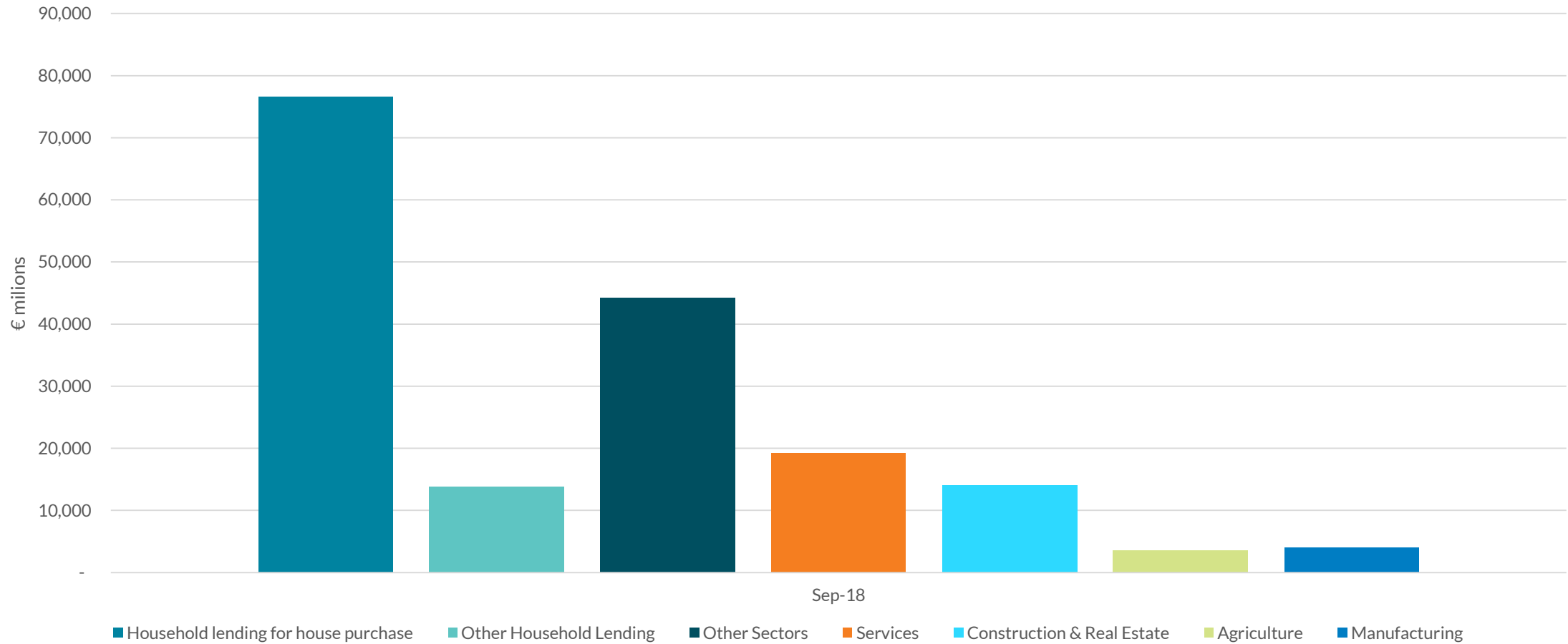


Public Sector

- Public housing ; public buildings : retrofitting
- Subsidies to domestic households and firms
- International transfers: global climate justice
- Structural issue for public finances



Outstanding Credit Advanced to Irish Private Households and Irish Resident Private-Sector Enterprises (End Q3-2018)



Source: Central Bank of Ireland

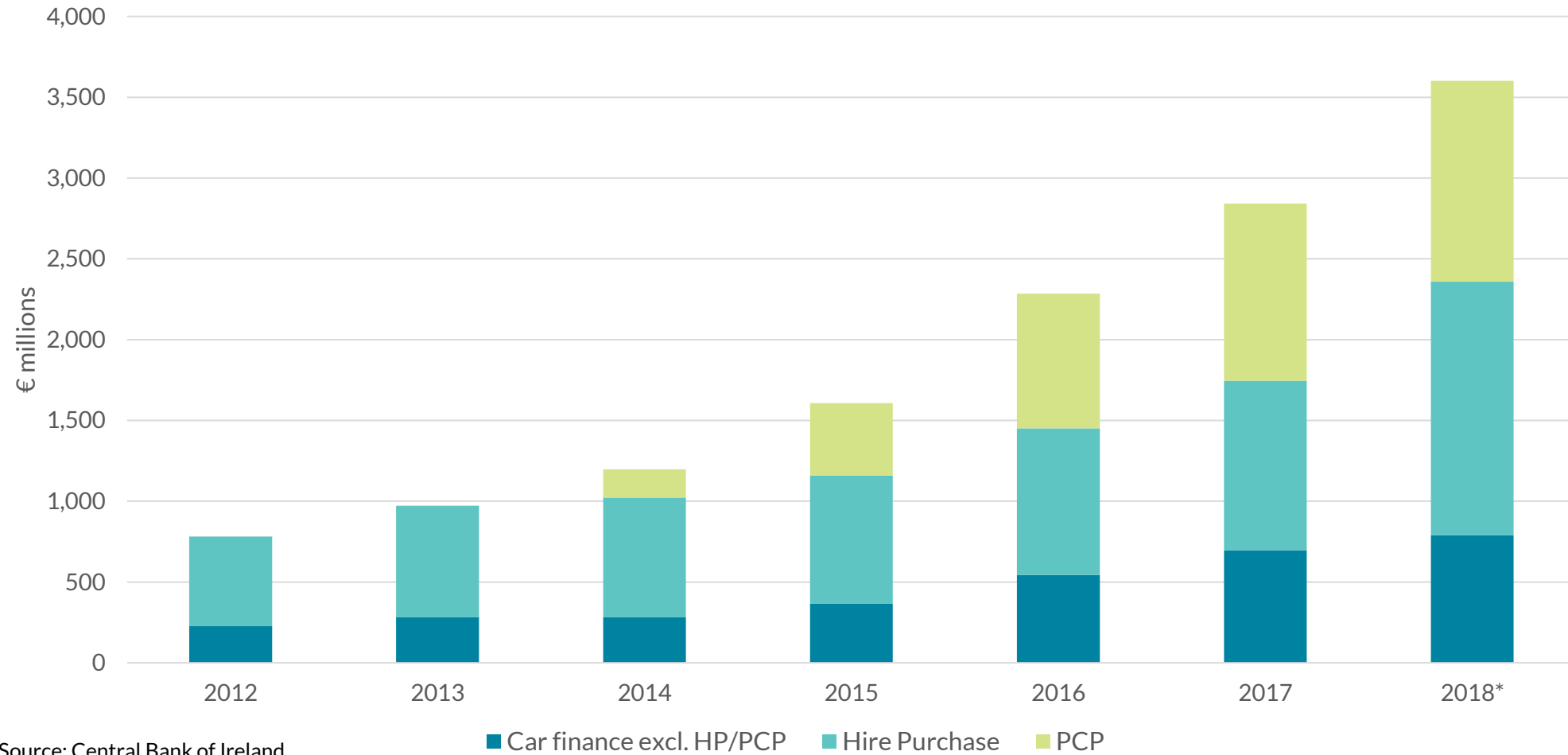
Note: Other includes lending to all sectors excluding Services, Manufacturing, Construction, Real Estate and Agriculture



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Outstanding Consumer Credit – Car Finance



Note: 2018 data refers to outstanding credit as of June 2018.



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Climate Change: Central Banking and Financial Regulation

- “Tragedy of the Horizon” (Mark Carney)
- Monetary Policy: weather and volatility; macroeconomic impact of disruptive transition paths (too slow; too fast); asset purchases; collateral framework
- Financial Stability
- Prudential and Conduct Regulation of firms and markets



Financial Stability

- Weather shocks; too slow transition; too fast transition; technological shocks; expectation shifts
- Capital ratios / solvency ratios/ liquidity ratios
- Physical risks: macroeconomic impact; financial impact
- Domestic exposures; foreign exposures



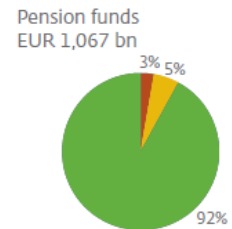
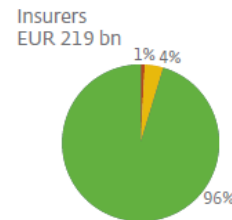
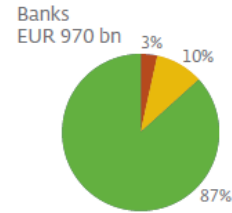
DNB Study: Vermeulen et al (2018)

- Portfolios of banks, insurance companies, pension funds
- Corporate loan books of banks
- Global shocks in a multi-country model (NiGEM)
- Transition vulnerability indicators for fifty-six industries (carbon exposures)
- Macroeconomic channel: shift in risk-free interest rate



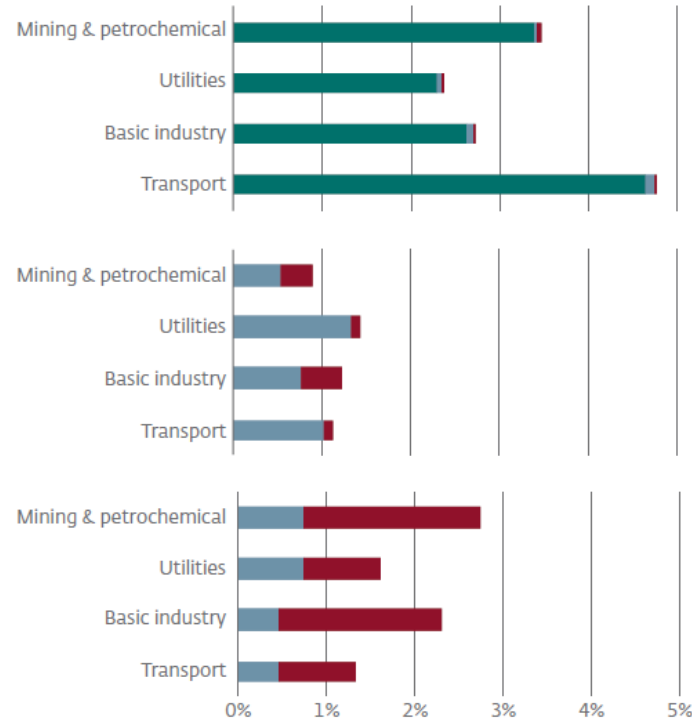
Exposure to Carbon-Intensive Industries

Exposures to carbon-intensive industries as a proportion of assets in sample



- Mining and petrochemical
- Other carbon intensive
- Non-carbon intensive

Exposures broken down by financial sector and asset class



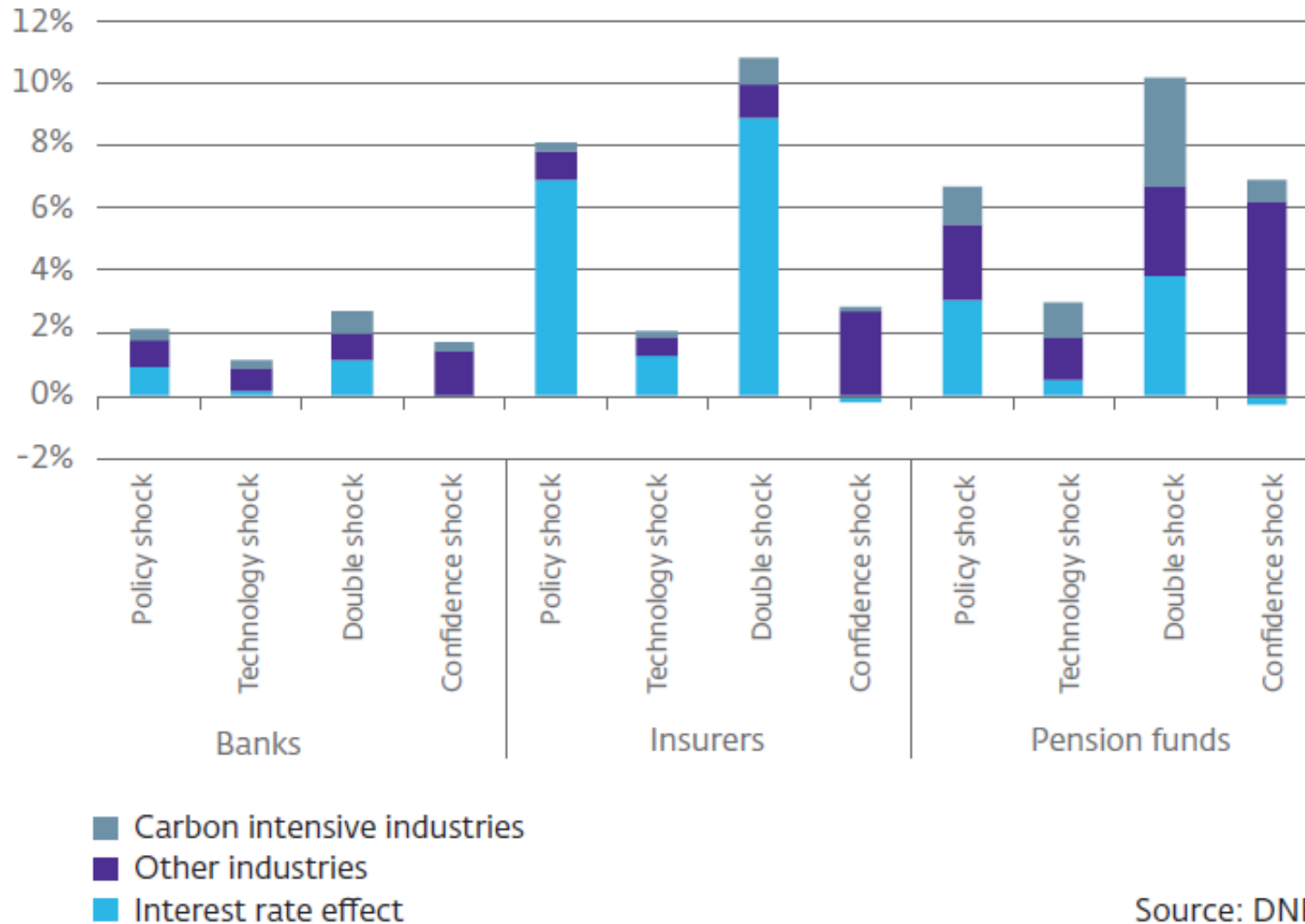
- Corporate loans
- Bonds
- Equity

Source: DNB.

Notes: Other carbon-intensive industries include Utilities, Basic industry and Transport.



Impact on Assets as a Percentage of Total Stressed Assets per Sector, Disaggregated by Risk Driver

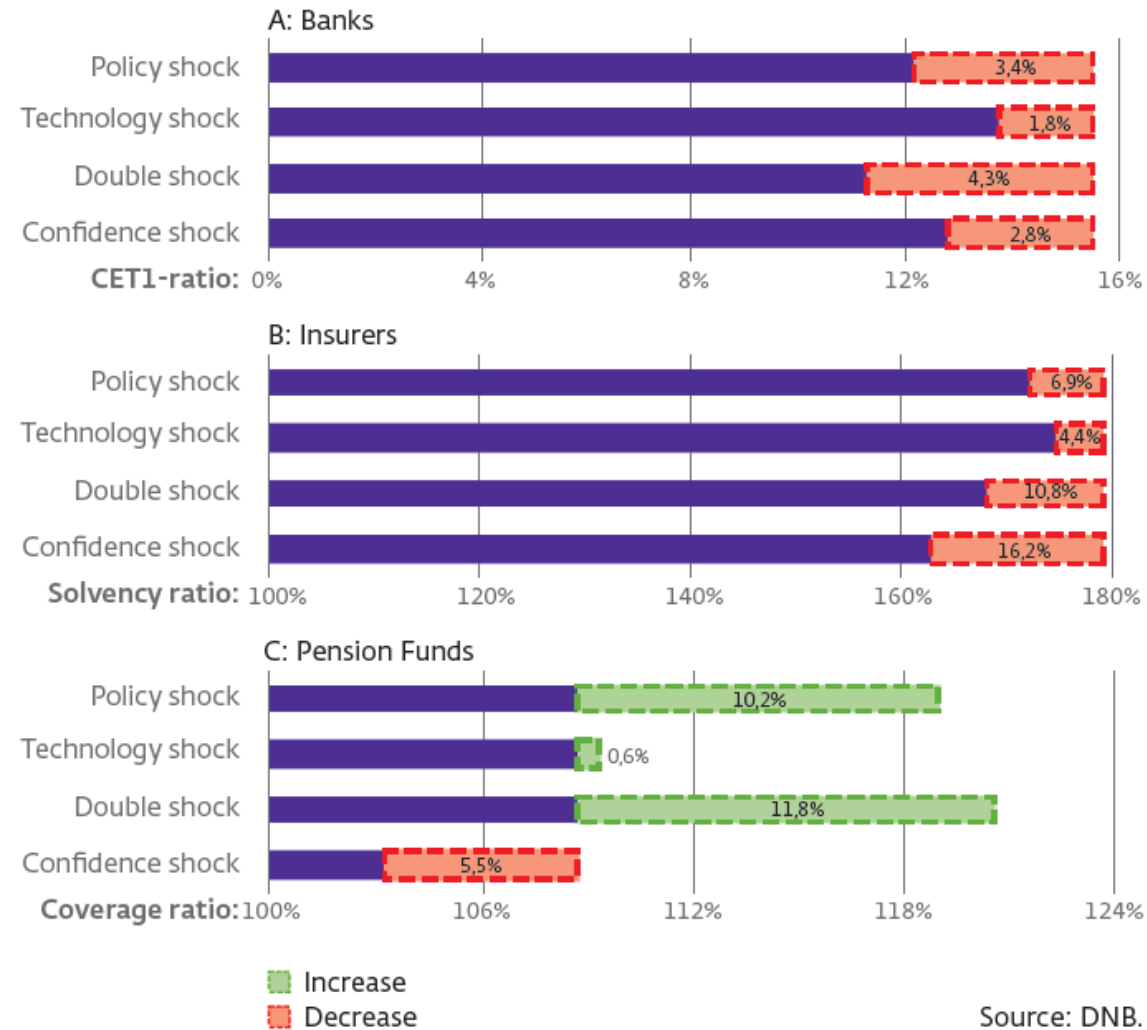


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Source: Vermeulen, Robert, Edo Schets, Melanie Lohuis, Barbara Kölbl, David-Jan Jansen, and Willem Heeringa (2018). An energy transition risk stress test for the financial system of the Netherlands. DNB Occasional Studies No 16-7.

Impact on Supervisory Ratios by Sector



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Source: Vermeulen, Robert, Edo Schets, Melanie Lohuis, Barbara Kölbl, David-Jan Jansen, and Willem Heeringa (2018). An energy transition risk stress test for the financial system of the Netherlands. DNB Occasional Studies No 16-7.

Regulation and Supervision of Firms and Markets

- Set expectations for regulated firms
- PRA: (a) governance; (b) risk management; (c) scenario analysis; (d) disclosure
- PRA/FCA: Climate Financial Risk Forum
- Disclosure: by corporations; by investment intermediaries
- Common taxonomy; benchmark definitions
- “green” versus “brown” credit risks?



Network for Greening the Financial System (NGFS)

- Macrofinancial workstream: macroeconomic and systemic risks
- Supervisory/microprudential workstream: disclosure practices and environmental-related credit risks
- Workstream on scaling up green finance: incorporation of ESG factors into operational and monitoring activities of central banks and regulators



Climate Change and the Central Bank of Ireland II

- Investment portfolio: ESG guidelines for equities; in preparation for bond component
- Ten green bonds (€221 million) in investment portfolio; six green bonds (€193 million) in PSPP
- A2 rating for North Wall Quay HQ
- International policy community: meetings strategy
- Cross-organisational effort: economics and statistics; financial stability; financial operations; facilities management; prudential and conduct regulation of banks, insurance companies, investment funds, financial markets



Conclusions

- Strategic Plan 2019-2021: resilience; consumer protection; engaging and influencing
- Climate resilience: macroeconomic; financial stability; micro-prudential
- Consumer protection: new financial products; financing of housing and transportation
- Engaging and influencing: leadership role; system-wide effort

