

Construction, Real Estate and Climate Change

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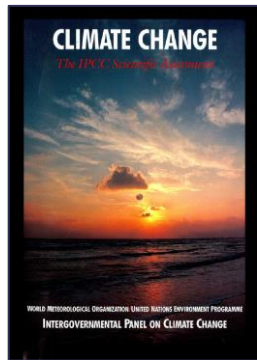
Advisory Council, Official Monetary and Financial Institutions Forum Sustainable Policy Institute
Advisory Council, Energy Efficiency Mortgages Initiative, European Mortgage Federation
Co-chair, Forward-looking data stream, Future of Sustainable Data Alliance

Joint Vienna Institute
7 March 2022

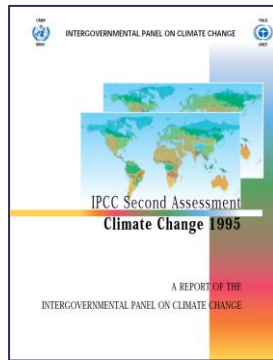
Structure

- **Why: Urgency of action & policy context**
- How: Integrating climate in construction & real estate; the role of the financial system
- How quickly: Breaking down barriers

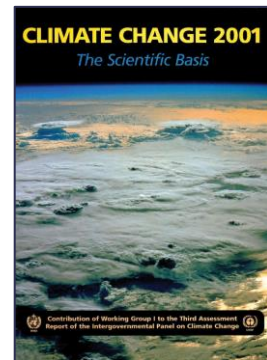
The science of climate change is looking ever more worrying



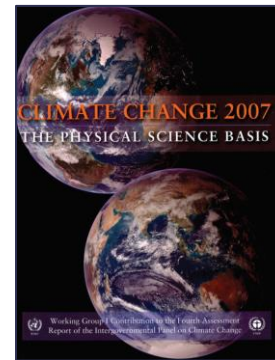
1990



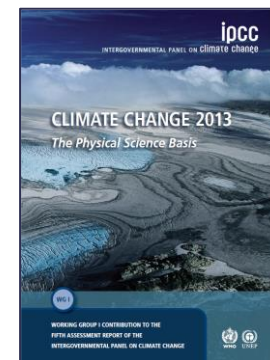
1995



2001



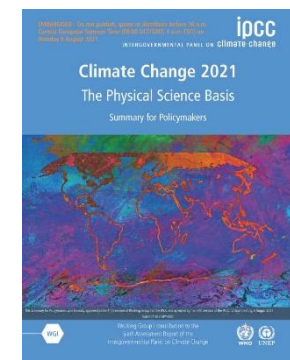
2007



2013



2018



2021

“There is **new and stronger evidence** that most of the warming observed over the last 50 years is attributable to human activities.”

“An increasing body of observations gives a collective picture of a **warming world and other changes** in the climate system.”

– Third IPCC Assessment Report, 2001

“It is **unequivocal** that human influence has warmed the atmosphere, ocean and land.”

“Human-induced climate change is **already affecting** many weather and **climate extremes** in every region across the globe.”

– Sixth IPCC Assessment Report, 2021

“The world faces **unavoidable** multiple climate hazards over the next two decades with global warming of 1.5°C. Even temporarily exceeding this warming level will result in **additional severe impacts**, some of which will be **irreversible**.”

“People and ecosystems **least able** to cope are being **hardest hit**.”

– IPCC, February 2022

2021 headlines: this is what the future is on course to look like



Greece wildfires force people to flee island by boat



World ▾ Business ▾ Lega

Nowhere is safe, say scientists as extreme heat causes chaos in US and Canada

Hundreds Missing and Scores Dead as Raging Floods Strike Western Europe



nytimes.com
Hundreds Missing and Scores Dead as Raging Floods Strike Western Europe



theguardian.com
Nowhere is safe, say scientists as extreme heat causes chaos in US a...

February 17, 2021
12:36 AM GMT
Last Updated 8 months ago

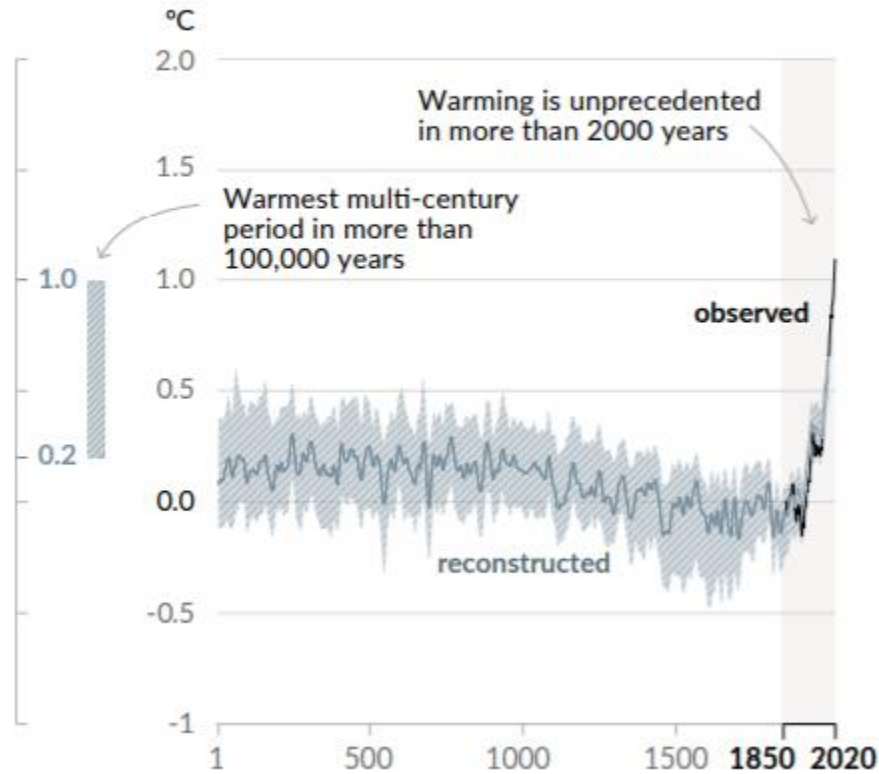
Environment

Texas deep freeze leaves millions without power, 21 dead

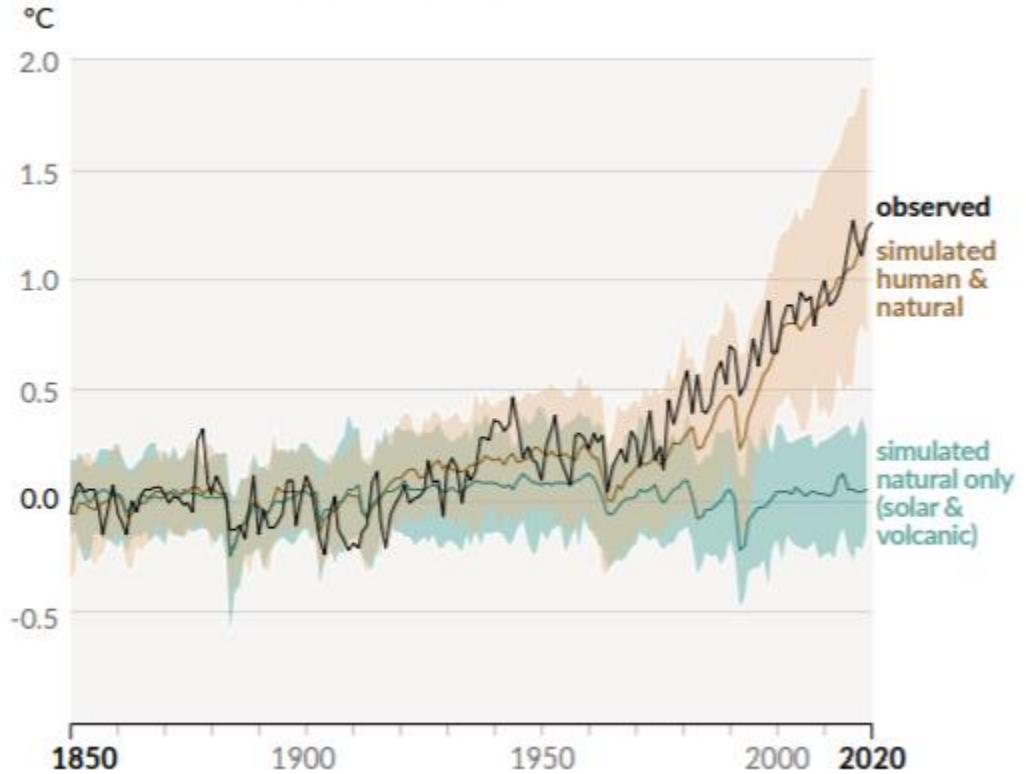
We have been on the wrong track

Changes in global surface temperature

a) Change in global surface temperature (decadal average) as reconstructed (1-2000) and observed (1850-2020)



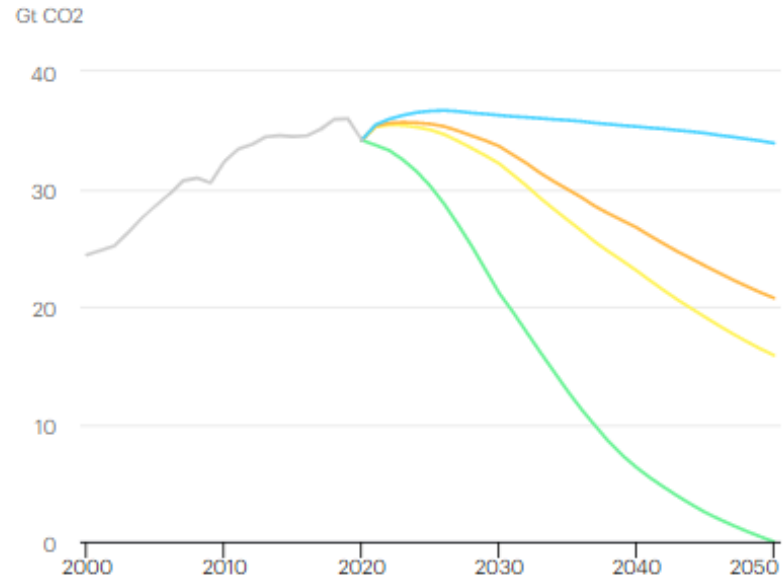
b) Change in global surface temperature (annual average) as observed and simulated using human & natural and only natural factors (both 1850-2020)



Source: IPCC AR6

Decisive decade to act on existential threat

Global CO2 emissions by scenarios



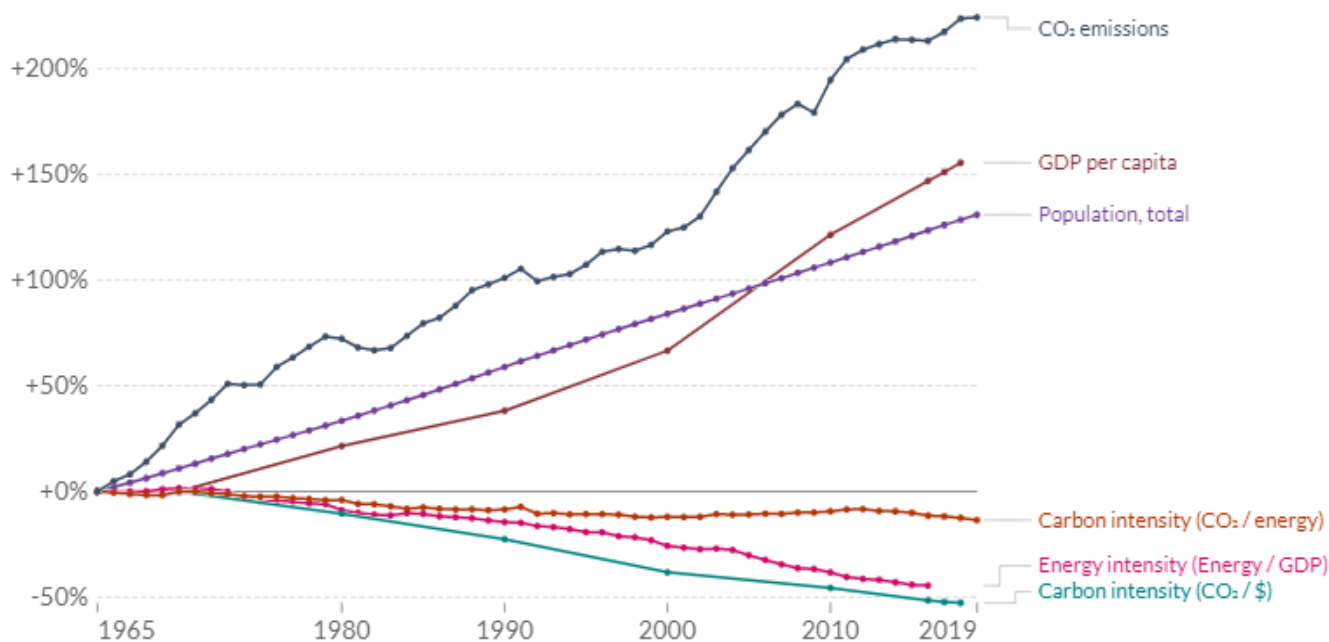
● Historical ● Stated Policies Scenario ● Announced Pledges Scenario
● Announced Pledges Scenario - updated with COP26 pledges as of 3rd November
● Net Zero Scenario

Scenario	Temperature increase compared with pre-industrial levels
Pre-Paris baseline	>3°C
Stated Policies	2.6°C
Announced Pledges post-COP26 (as of 3 Nov '21)	1.8°C
Net Zero by 2050	1.5°C

Source: International Energy Agency

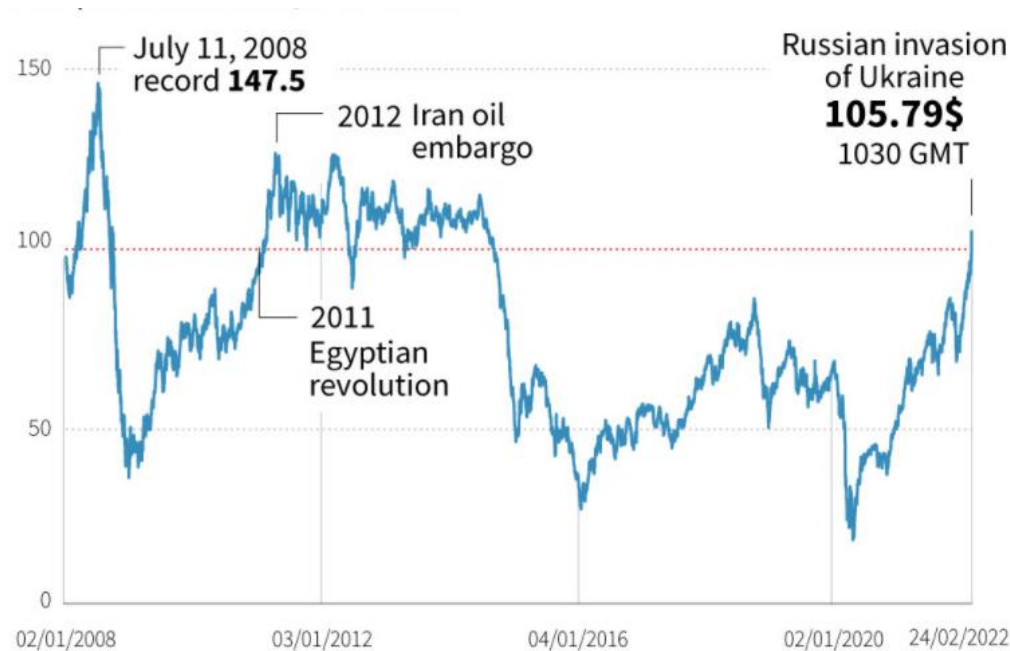
Triple challenge: Covid recovery & address geopolitical tensions & build back better

World GDP & emissions: % change in the four parameters of the Kaya identity



Source: Our World in Data based on Global Carbon Project; UN; BP; World Bank; Maddison Project Database

Price per barrel of Brent, USD



Source: Intercontinental exchange (ICE), closing prices except Feb 24 – via AFP

Structure

- Why: Urgency of action & policy context
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Climate change and economic performance: channels of disruption

- Physical risk: Disruption to economic activity and trade from rising temperatures (e.g. tourism), extreme weather effects (e.g. infrastructure & **real estate**) & loss of biodiversity (e.g. agriculture)
- Physical risk: Implications for long-term economic capacity (e.g. lower labour productivity & **degradation of capital stock**)
- Transition risk: Paris commitments and implications for **additional regulations** that may constraint economic output in the short term compared to no climate-action scenario.
- Transition risk: expected changes in **carbon-related tax and subsidies**.
- Liability risk: Higher **insurance costs**

Vulnerabilities in the construction & real estate sectors

- Physical risks: Increased **frequency of disasters** and gradual **changes in climate and temperature** can affect the values of assets directly through **damages to their structures**, or indirectly through **higher insurance costs** or **falling demand for accommodation** in winter or sea resort areas suffering from changing temperatures.
- Transition risks: The potential costs of transitioning to low-carbon economy and complying with climate-aligned government regulations may involve short-term **higher energy prices**, the need to **transform buildings into more sustainable and energy-efficient structures**, and **higher taxes for unsustainable assets** where sustainable alternatives are available.

Vulnerabilities in the construction & real estate sectors

- The housing sector is a strategic sector: the main place where people live and – increasingly – work from. It accounts for around 40% of emissions in continental Europe (compared to e.g. 3-4% for aviation sector). Around three quarters of the EU's building stock is considered energy inefficient. (European Commission, 2020)
- The majority of the building stock in the residential segments has a very low energy performance level. Around 75% of the existing EU building stock was built when there were minimal or no energy-related building codes. The majority of these buildings (up to 90%) will still be in use until 2050. (European Commission, 2020)
- For European households, housing costs represent on average over 40% of disposable income among the population earning 60% of median national income, with peaks of around 60% in Greece and Germany (Eurostat, 2021)
- Around 8% of European population face the so-called 'Eat or Heat' dilemma, meaning they may be unable to keep their home adequately warm (Eurostat, 2021).
- Reductions in energy running costs can contribute to financial stability thanks to lowered credit risk, reduced probability of default and increased property value.
- Important gains for lower-income households which are more likely to live in dwellings which are less energy efficient, and for whom running and living costs represent a greater share of income.

What can central banks do?

Two-fold motivation for central banks to green the financial system

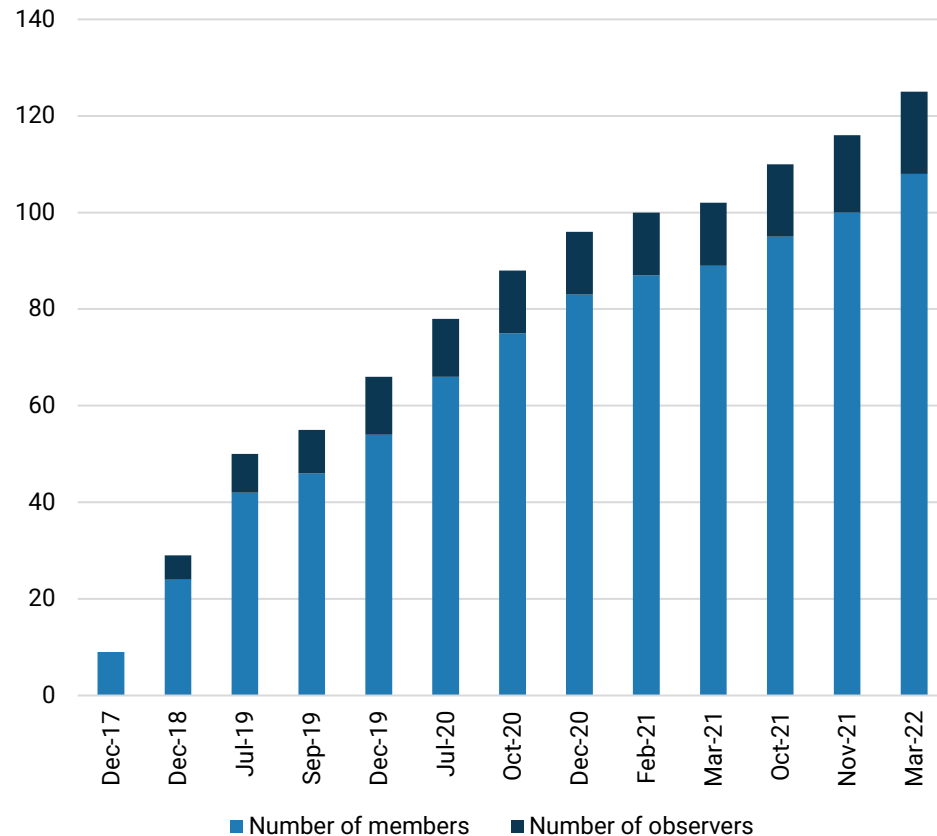
- 1. Resilience to risk/impact on primary mandate:** *Contingent on their mandate, central banks have a responsibility to review their operational frameworks to ensure they remain resilient to emerging climate-related risks and to safeguard the continued smooth conduct of monetary policy, i.e. to consider the effect of climate-related risks on their operations as well as the effects of their actions on exposures of other entities, including the financial sector, to climate-related risks.*
- 2. Avoid undermining/actively support the transition:** *Where it falls within their policy remit, central banks could also consider going beyond the adjustment of their operational frameworks solely from a risk management perspective by seeking to ensure that their monetary policy operations do not undermine the transition to a low-carbon economy and/or by exploring ways in which they can actively support that transition.*

Source: Network for Greening the Financial System

Widespread consensus across central banks that climate risks are financial stability risks requiring central bank action

NGFS members acknowledge that climate-related risks are a source of financial risk. It is therefore within the mandates of Central Banks and Supervisors to ensure the financial system is resilient to these risks.

Source: NGFS First Progress report (October 2018)
<https://www.ngfs.net/sites/default/files/medias/documents/818366-ngfs-first-progress-report-20181011.pdf>



Source: Network for Greening the Financial System

Realigning the financial system: piecing together the green puzzle

Strategy: Roadmap setting long-term expectations and communicating plan for near-term actions

Setting & communicating objectives: Speeches, research reports, conferences

Scenario analysis & macro modelling: Adjusting macro models to account for climate impacts; aligning monetary policy instruments with transition/addressing carbon bias in monetary portfolios

Financial stability & prudential policy: Climate stress tests, disclosure requirements & guidance, risk weights & capital requirements

Scaling up sustainable capital markets and ESG investments: Divestments, engagement and sustainable investment (innovation, green and SDG bonds)

International cooperation: NGFS membership, cooperation through global regulatory & standards bodies

Central banks are taking measures across functions

Monetary Policy

	Example/case studies
Models & staff forecasts	Incorporating climate variables in macro modelling
Asset purchases	Addressing carbon bias in portfolios, 'green QE', accepting sustainability-linked bonds as collateral. Case study: European Central Bank
Lending facilities and open market operations	Green targeted lending programmes. Case Study: Magyar Nemzeti Bank

Regulation/Supervision

	Example/case studies
Stress tests	Climate stress tests for regulated institutions. Case studies: Banque de France, Bank of England, DNB
Prudential policy	Adjusting capital requirements: Green Supporting Factor, Brown Penalising Factor. Case study: People's Bank of China, Magyar Nemzeti Bank

Leading by example/own operations/portfolio management

	Example/case studies
Own reporting	Disclosure of carbon footprint of own operations, assessment of own activities. Case studies: Bank of England, De Nederlandsche Bank
Portfolio/Reserves management	ESG integration, negative screening strategies, sustainable investments. Case study: Sveriges Riksbank
Corporate sustainability	Upgrading energy efficiency of own buildings, reporting on travel-related carbon footprint. Case study: De Nederlandsche Bank

Realigning the financial system: recent developments

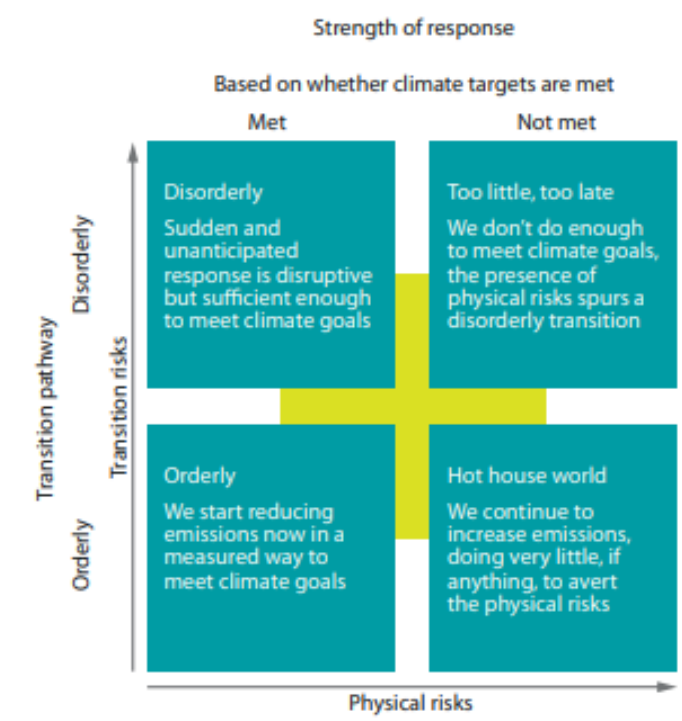
- **July 2021:** The Magyar Nemzeti Bank, Hungary's central bank, launched its Green Mortgage Bond Purchase Programme and the FGS Green Home Programme as part of its green monetary policy toolkit strategy, with a view to “contribute to the development of the domestic green mortgage bond market through targeted purchases” and “indirectly support the construction of energy-efficient real estate, thereby contributing to a healthier housing market, while at the same time this may also shape environmentally conscious consumer behaviour.”
- **March 2021:** The European Central Bank issued a legal opinion ‘strongly encouraging’ the Hungarian authorities “not to allocate to the MNB the task of providing energy efficiency loans directly to consumers”
- **April 2021:** The EU Commission Taxonomy Climate Delegated Act included the top 15% most energy efficient houses within a country eligible for the Taxonomy.
- **October 2021:** The latest iteration of the Basel III framework explicitly references energy efficient properties stating that “modifications made to the property that improve the energy efficiency of the building or housing unit must be considered as unequivocally increasing its value” – to which a favourable risk can be applied by updating the Loan to Value of the properties. This gives an overarching strategic relevance to the financing of energy efficient refurbishments.
- **November 2021:** The People's Bank of China launched a Carbon Emission Reduction Facility (CERF) to offer low interest loans to financial institutions that help firms cut carbon emissions. These will be targeted primarily at clean energy solutions, including pumped and high efficiency energy storage, smart grid and roof distributed photovoltaic development.

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Data challenges: an excuse for inaction?

When balancing the need for robust and comprehensive data against the opportunity cost of inaction, central banks should be cognisant of the risk that acting early with imperfect information could be less costly than acting only once stronger data standards have emerged.



Source:

https://www.ngfs.net/sites/default/files/medias/documents/ngfs_monetary_policy_operations_final.pdf

Not everyone thinks it's a good idea..

Opinion **The FT View** [+ Add to myFT](#)


Central banks should turn green

Climate is a risk to financial stability; more radical measures need democratic approval

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The ECB in Frankfurt, Germany. Central banks must understand what economic and financial risks climate change brings © Ronald Wittek/EPA-EFE/Shutterstock

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The perils of asking central banks to do too much

Mar 13th 2021 edition >

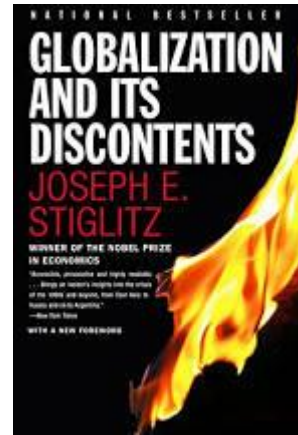
Dealing with inequality and climate change is best left to politicians



Otto Dettmer

Sources: <https://www.ft.com/content/1cbbb6d5-1676-43dd-a1cb-232f92ebb876> & <https://www.economist.com/finance-and-economics/2021/03/13/the-perils-of-asking-central-banks-to-do-too-much>

Climate action and its discontents?



Parliament 'misled' over cost of net zero target, say Conservative MPs

Having scrutinised data used by the government's advisory body, a group of Tory backbenchers believe their financial calculations are flawed

By Edward Malnick, SUNDAY POLITICAL EDITOR

25 September 2021 • 4:43pm

Focus on the co-benefits of improving energy efficiency









Understanding the co-benefits - and linking through them climate action to issues that the public care about - can help policy-makers prioritise policy options that have a greater chance of public support for such changes (in the face of occasional public opposition to the transition)

- **Health:** Reduced ill health through cold homes; increased wellbeing from access to warmer & more comfortable homes
- **Economic:** Savings on fuel bills (especially for energy importing countries); improvements in productivity through better health; improvements in housing affordability thanks to reduced cost of repairs
- **Social:** Reduced fuel poverty; improved social mobility through improvements in ability to study at home; protection from vulnerability to energy price increases
- **Resilience:** Resilience to future energy price increases and overheating; reduce vulnerability to wider geopolitical events; improve energy security and reliance on energy imports; reduce risk of conflict over access to resources

Focus on the co-benefits of improving energy efficiency

Understanding the co-benefits - and linking through them climate action to issues that the public care about - can help policy-makers prioritise policy options that have a greater chance of public support for such changes (in the face of occasional public opposition to the transition)

Top three most appealing attributes of the Green Mortgage, selected countries

								
#1	Bring down the cost of my energy bills	Bring down the cost of my energy bills	Bring down the cost of my energy bills	Bring down the cost of my energy bills	Bring down the cost of my energy bills	Bring down the cost of my energy bills	Bring down the cost of my energy bills	Bring down the cost of my energy bills
#2	Combines with gov. backed Superbonus 110% tax reduction program	Increases the value of my property	Increases the value of my property	Gives me a warmer, more comfortable home	Increases the value of my property	Gives me a warmer, more comfortable home	Increases the value of my property	IR for additional borrowing discounted at same rate as mortgage
#3	Reduces my carbon footprint	IR for additional borrowing discounted at same rate as mortgage	IR for additional borrowing discounted at same rate as mortgage	IR for additional borrowing discounted at same rate as mortgage	Gives me a warmer, more comfortable home	Increases the value of my property	Gives me a warmer, more comfortable home	Increases the value of my property

Source: European Mortgage Federation, Energy Efficiency Mortgages Initiative

B7b. Which of the following aspects of the Green Mortgage do you find most appealing? NB Some features only shown in certain markets

Base: All respondents Italy (n=503); Spain (n=514); Portugal (n=504); Netherlands (n=507); Romania (n=508); Hungary (n=506); Germany (n=500)

The growth story of the 2020s



Source: <https://www.ft.com/content/a4cf5b10-17ad-42a9-9a3d-f678f3d443da>

To leaders in China, India and Australia who are yet to deliver 2030 targets, I say this: it is in your economic self-interest to accelerate your shift from coal-based electricity and start to address your looming transport emissions. The green economy is the **growth story of the 2020s**: 35m new green jobs are expected by 2030.

-Christiana Figueres, UNFCCC Executive Secretary 2010-16