SPEECH

Governor Signe Krogstrup's speech at CBS and DTU Conference: Can Sustainable Finance Save the Planet?

DANMARKS NATIONALBANK

10 November 2026

CHECK AGAINST DELIVERY

"From capital to climate resilience: why finance needs the right foundations"

Thank you for inviting me to speak at this very topical conference.

I will start today with the question of the conference: **Can sustainable finance save the planet?**

Let us consider this through the lens of two concrete types of investments.

A coastal protection project that protects homes and businesses from flooding. And an electricity connection between countries that helps renewable power reach the places where it is needed.

Both can strengthen resilience to climate change and extreme weather events. Both require substantial investment today. Their benefits extend over decades. But not all those benefits generate income for investors. Financing hence cannot be based on similar return and risk expectations as market financing.

So can sustainable finance help? Sustainable finance brings environmental, social and governance considerations into financial decisions. Today, I will focus mainly on climate.

My main message will be:

Sustainable finance can help. But can it do the job alone?

No. Public policy still needs to create the conditions for socially desirable private investments.

First, I will take stock of climate risks and the green transition. I will also address why these are important issues from a central bank perspective.

Second, I will discuss the role of sustainable finance, as well as other forms of finance for climate mitigation and adaptation.

Third, I will revert to my two examples: coastal protection and an electricity interconnector, to illustrate the need for good policies and incentives for investments.

1. SETTING THE SCENE: CLIMATE RISKS AND DANMARKS NATIONALBANK

Climate risks are economic realities, not distant scenarios

I begin with a brief reality check.

Climate change is no longer a distant risk scenario. The past three years have been the hottest on record globally.[1] This is linked to ever rising greenhouse gas emissions.[2]

Extreme weather is more frequent and severe. There are more heatwaves, droughts, heavy rainfall, floods and wildfires. Those of you who drove through France or Spain this summer saw the consequences. Europe is, in fact, the fastest warming continent.

Extreme weather already has economic costs. It affects our ability to produce goods and services, and risks on financial balance sheets. The European Environmental Agency's assessment is that the last four years were among the five costliest since 1980.[3]

The green transition is processing, but unevenly and too slowly

The transition is progressing, but unevenly and too slowly. The global energy supply is growing and remains largely fossil fuel-based.

Europe has reduced emissions, but global emissions continue to rise.[4] Climate goals are no longer the only driver. Renewable energy is increasingly good business.

Energy security and competitiveness also increasingly matter in Europe. Europe is a net fossil fuel importer. Transition policies indeed seem to be stronger in fossil energy importers. Growth in renewable energy investment was five times higher in net energy importers than exporters since 2021.[5] In China, also a net importer, emissions are increasing. But the share of fossil fuels in the energy mix is falling.

So, despite the negative headlines, the transition is in progress in some places.

Why climate risks matter for Danmarks Nationalbank

Why is this relevant for Danmarks Nationalbank?

For Danmarks Nationalbank, climate change matters because it can affect inflation, financial stability and the resilience of the Danish economy.

Supply disruptions from climate shocks, such as floods or heatwaves, can affect the prices of energy, food and other goods, and hence inflation and cost of living.

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[1] See *Copernicus Climate Change Service*.
[2] According to the latest UNEP Emissions Gap Report, the world is on a trajectory towards a warming of around 2.8 degrees by 2100 under current policies and 2.6 if all Paris Agreement commitments are delivered.
[3] See Economic losses from weather- and climate-related extremes in Europe, *European Environment Agency,* 2025.
[4] Noting, however, that the EU's consumption-based footprint continues to increase.
[5] See World Energy Investment 2026, *International Energy Agency*, May 2026.

Climate change can also impact financial risks.

Because we are an exceptionally open economy, we are also exposed to climate risks through trade, energy imports and foreign financial investments.

We assess the risks, publish data and take climate considerations into account in managing our reserves.

Separately, as government debt manager, we issue green bonds on behalf of the Ministry of Finance.

Climate policy itself remains the responsibility of elected government. But we follow climate policies closely in so far as they matter for price and financial stability.

This brings me back to the question of the needed investments.

2. INVESTMENT NEEDS AND FINANCING

Investment is needed for both climate change mitigation and adaptation. Mitigation requires changes in energy production, networks, buildings and industrial processes. Adaptation requires infrastructure and economic activity to become more resilient to a changing climate. The two types of investment are interdependent. For example, delaying mitigation will increase future adaptation needs.

The green transition requires considerable investments

The European Commission estimates annual transition investment needs of more than 8 percent of GDP to meet the 55 percent emission reduction target by 2030.[6] Estimates very, also for Denmark, where they are in a similar range.[7]

Some of this investment is already taking place, but additional investment needs are large. So, is financing sufficient to meet these needs?

Let us first take stock of sustainable finance markets.

Sustainable finance: stagnation after initial progress?

The global market for sustainable finance grew rapidly from low levels before 2021. Since then, growth has slowed. The chart illustrates this for global new issuance of green, social and sustainability bonds.

Market pricing of sustainable finance products points in the same direction. Investors may accept a slightly lower return to hold a green bond, if the green mandate is important. That difference is often called the greenium. In some markets, it has all but disappeared.

The growth in sustainable finance markets also appears to be slowing in Denmark. Danmarks Nationalbank publishes statistics on sustainable

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[6] Carolin Nerlich, et al. 'Investing in Europe's Green Future: Green Investment Needs, Outlook and Obstacles to Funding the Gap', *Occasional Paper Series*, no. 367, European Central Bank, 2025.

[7] See Privat deltagelse i samfundsinfrastruktur, *CIP Foundation*, October 2026.

bonds, seen here in the chart.[8] Financial companies, especially mortgage institutions, are the largest issuers.

So while investment needs are increasing, labelled sustainable finance seems to be slowing.

This is not the whole story, however.

Looking beyond the label to assess climate related financing

The literature suggests that sustainable finance may not necessarily add to overall green investments. Instead, sustainable investors may partly crowd out conventional investors, changing the mix of investors more than the overall level of investment.[9]

Another problem with focusing on sustainability labels is that it might not add actual investment in sustainability at all.

An ordinary bond can finance a new electricity grid. A green bond can refinance one already built. We therefore need to look beyond the label.

The International Energy Agency (IEA) reports that European investment in renewables, electricity networks and electrification have more than doubled since 2016.[10] And continues to increase.

Investments in renewables in the United States are also large and increasing, but not reflected in labelled sustainable finance. In China, we also see growing investments in renewables, with a more mixed financing picture.

3. INCENTIVES AND POLICIES MATTER FOR INVESTMENTS

Whether sustainable finance or a broader definition of investments, there is a financing gap for the transition and adaptation, in Europe and globally.

Climate finance is, also for this reason, high on the agenda for this year's COP31 taking place as we speak in Türkiye.

Policies to support investment are needed to achieve climate goals.

The textbook starting point for getting better incentives to finance climate related investments is externalities.

The problem is that people and firms do not pay for the damage caused by emissions from their activities. These costs are external to their financial decisions. Instead, society bears the costs.

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[8] See Nicolai Riis Ladefoged and Ida-Marie Jensen, New statistics focusing on sustainable bonds, *Danmarks Nationalbank*, February 2026.

[9] See Kölbel, Heeb, Paetzold & Busch, Can Sustainable Investing Save the World? Reviewing the Mechanisms of Investor Impact, Organization & Environment, 33(4) 2020.
See also Pedersen, Lasse Heje, Can Sustainable Finance Save the Planet? FEB-RN Research Paper No. 147/2026, *Journal of Finance: Insights and Perspectives,* Symposium on Climate and Nature Finance, June 2026.

[10] Europe includes EU27 and Albania, Bosnia and Herzegovina, Gibraltar, Iceland, Kosovo, Montenegro, North Macedonia, Norway, Serbia, Switzerland, Türkiye (Turkey), United Kingdom. See World Energy Investment 2026, *International Energy Agency*, May 2026.

Carbon pricing addresses this market failure directly. With pricing of carbon emissions, high-emissions investments and activities become more expensive. This makes lower-emission technologies relatively more attractive for investors.

Most economists are quite familiar with the argument. Policymakers are equally familiar with the political challenges of higher carbon taxes. Fossil fuels still benefit from subsidies in many countries.

Denmark is an example of how broad-based carbon taxation can work. Carbon taxes with broad coverage have been introduced alongside recycling of the revenues from the taxes for green investment.

It complements the EU Emissions Trading Scheme (ETS), which is another important and impactful example.

I promised myself that this would not be yet another economist's speech about the virtues of carbon pricing schemes. But at the current juncture, I think it is worth recalling these virtues. At the very least, to safeguard the existing policies and schemes that work.

Other public policies also matter for incentivizing investments.

Public guarantees or blended finance can help when excessive risks prevent worthwhile projects from proceeding on market terms. Public policy should be credible and predictable. This is because investors base their decisions on the returns and conditions over the long horizon of these types of investment.

Well-functioning markets for sustainable finance products are important, so they can complement investment needs.

International cooperation of policies can incentivize financing of infrastructure that crosses borders.

Let me illustrate some of these issues with the two investments I began with.

Coastal protection investments and the need to turn shared benefits into an arrangement that can be financed.

Electricity connections and the need to coordinate investment when benefits and responsibilities cross borders.

CASE A: The Danish coast: climate adaptation and storm-surge risk

This is a teaser to an analysis we are publishing shortly. Storm surge risk is a key climate related risk in Denmark.

We examine the links between storm surge-damages, compensation and insurance arrangements and credit risk. And illustrate the potential scale of future damages and financial risks.

In a severe but plausible mid-century scenario, an extreme coastal flood event in Denmark could cause three times the damages that storm surges are expected to cause today.

The losses for the affected households and firms are severe. The impact on mortgage credit institutions and banks less so, but still important.

Investment in climate adaptation would be desirable. But financing of such investments is hampered because private investors cannot capture the benefits of reduced future damages and channel these into funding.

This requires a framework for adaptation investment where responsibilities and cost-allocation are clear. And it requires insurance arrangements with the right incentives to strengthen resilience.

CASE B: Integrating European electricity

Now consider the urgent need for investments in electricity interconnectors in Europe. Nearly 60 percent of the EU's total energy supply is imported, as seen in the chart.[11] And a large share is still fossil-based. This contributes to emissions. It also raises strategic energy security concerns in Europe.

It contributes to higher average energy prices and puts the EU companies at a competitive disadvantage.[12]

Moreover, global supply disruptions to energy can feed through quickly to electricity prices in Europe, which in turn can affect inflation.

This is not hypothetical. We see these dynamics currently.

So what is needed?

Europe needs more low-carbon electricity. But it also needs to move that electricity to where it is needed. This requires investment across borders. And cooperation and collaboration on energy policy in Europe. This is high on the agenda of EU policymakers. But solutions are not yet in place.

4. CONCLUSION

Let me conclude.

We need substantial investment to reduce emissions and adapt to climate change.

Sustainable finance can help, but green labels are not the whole story. What matters is whether investment happens.

That requires credible policies, clear responsibilities and cooperation across borders.

So, can sustainable finance save the planet? Not on its own. But with the right foundations, it can help finance the transition and a more resilient economy.

Thank you.

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[11] See Energy in Europe: imports dependency, *Eurostat*, March 2026.
[12] See Competitiveness Newsletter, *European Commission,* November 2025.

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From capital to climate resilience: why climate finance needs the right foundations

Governor Signe Krogstrup
Conference: Can Sustainable Finance Save the Planet?, CBS and DTU, 10 November, 2026



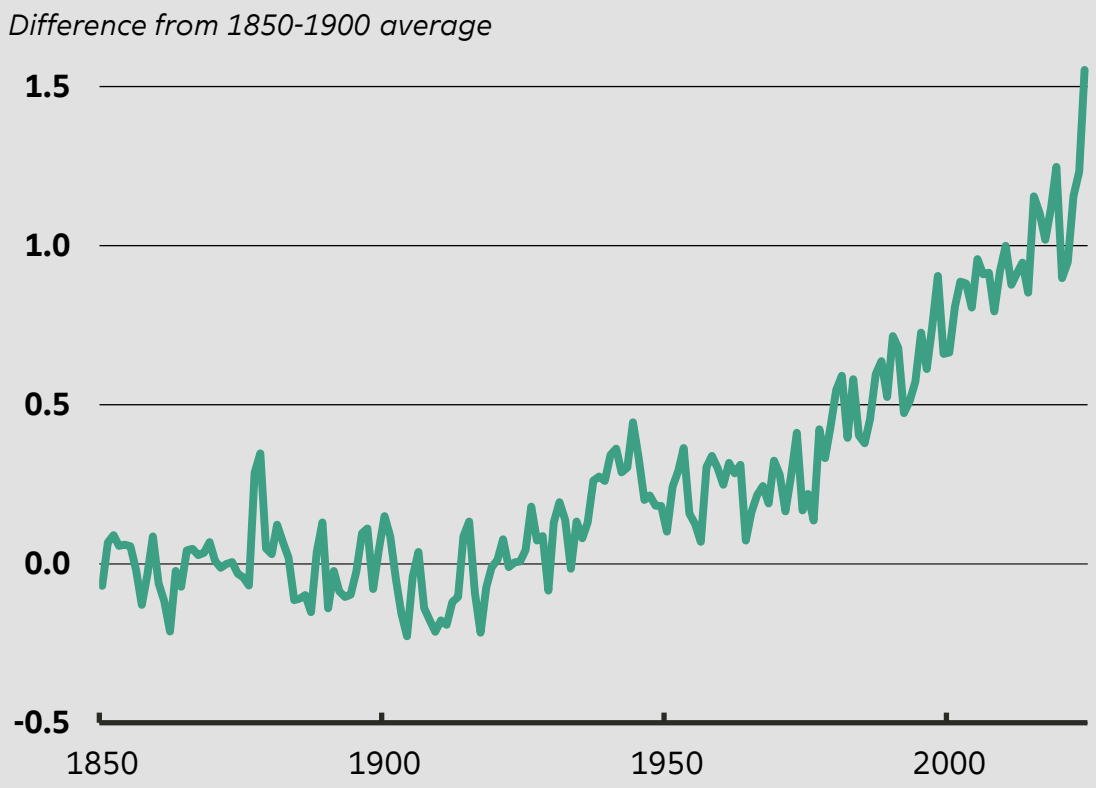
Agenda

1. Setting the scene – climate risks and Danmarks Nationalbank
2. Investment needs and financing
3. Incentives and policies matter for investments
    - CASE A: Resilience to storm surges in Denmark
    - CASE B: Integrating European energy infrastructure
4. Conclusion

1. Setting the scene – climate risks and Danmarks Nationalbank

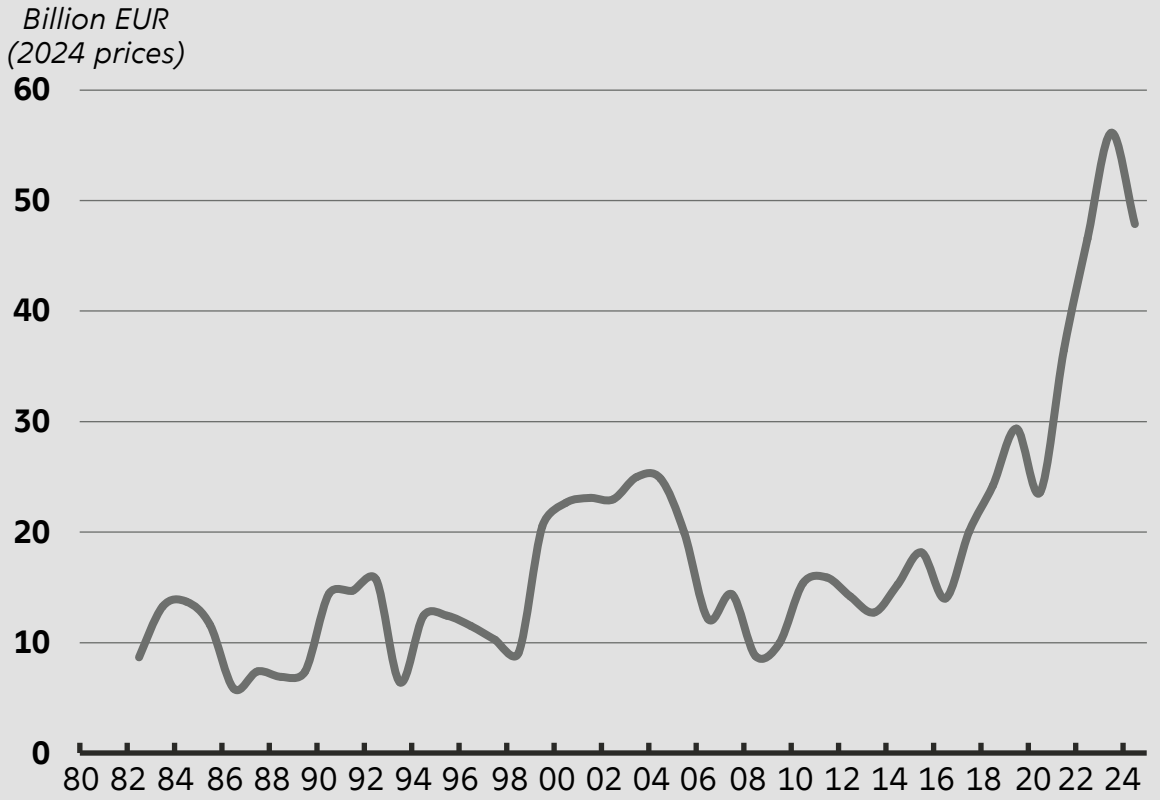
Climate risks are economic realities, not distant scenarios

Global mean temperatures continue to rise



Source: World Meteorological Organization.

Annual economic losses from weather- and climate-related events in the EU have increased significantly in recent years

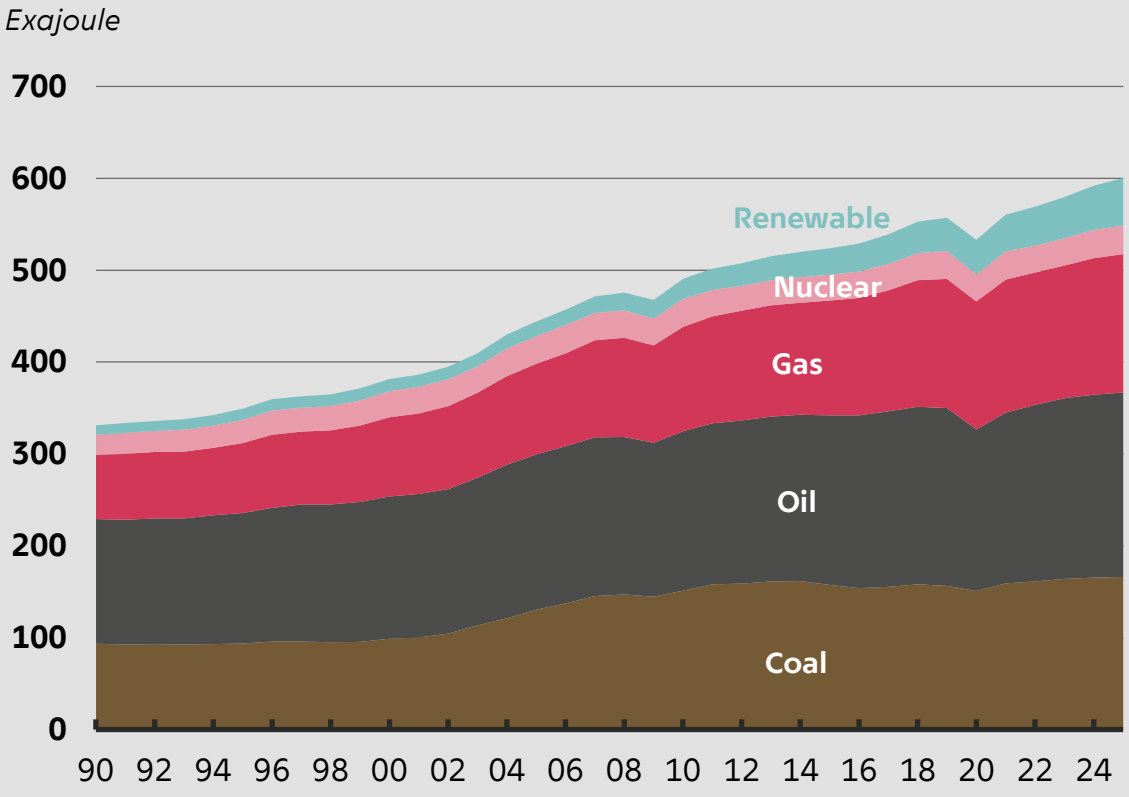


Note: 3-year moving average.
Source: European Environment Agency.

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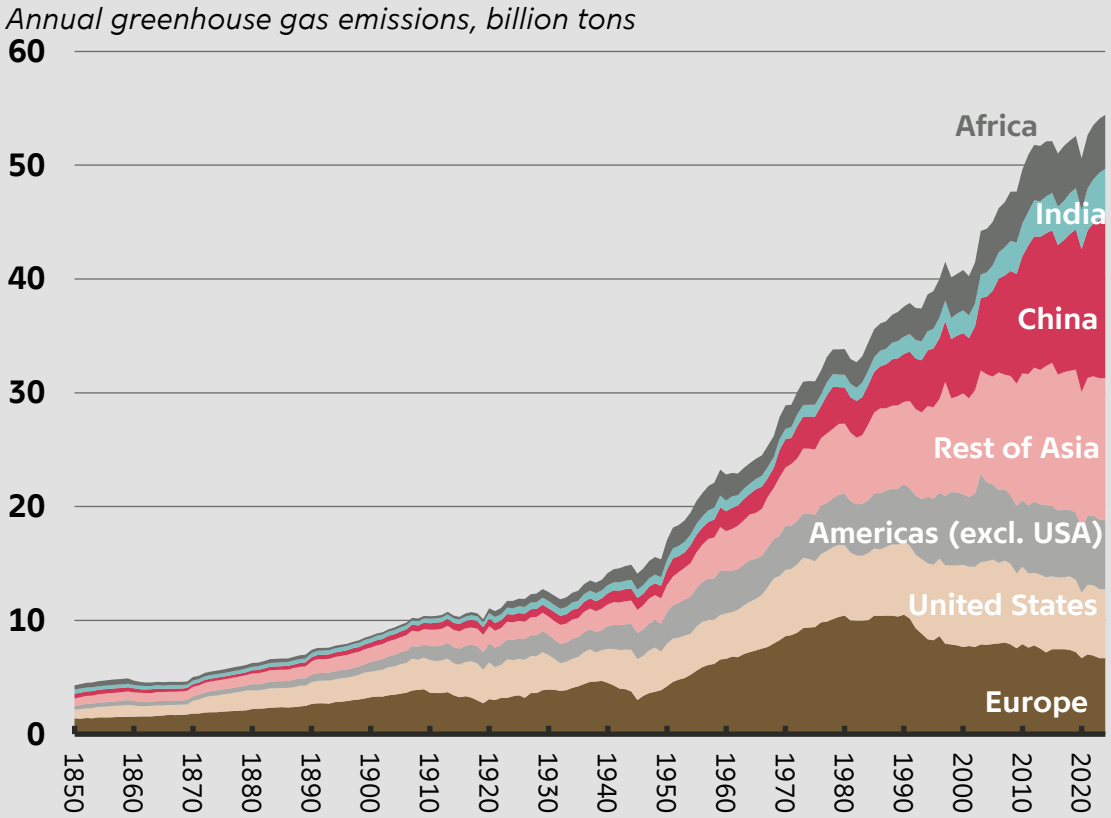
The green transition remains uneven

Global energy supply remains largely fossil-based



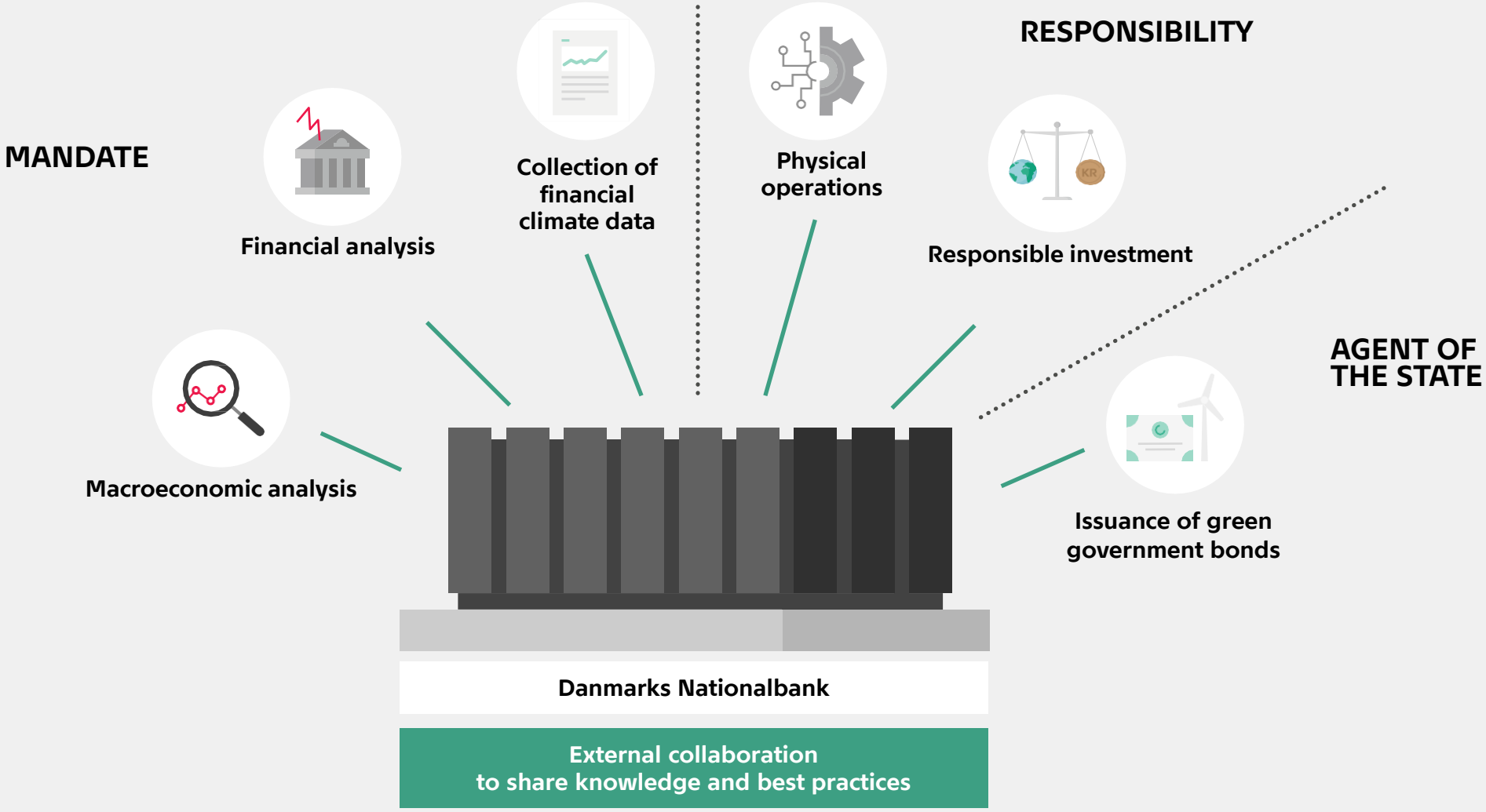
Source: Energy Institute.

Greenhouse gas emissions decreasing in Europe, but rising globally



Source: Global Carbon Budget, Our World In Data.

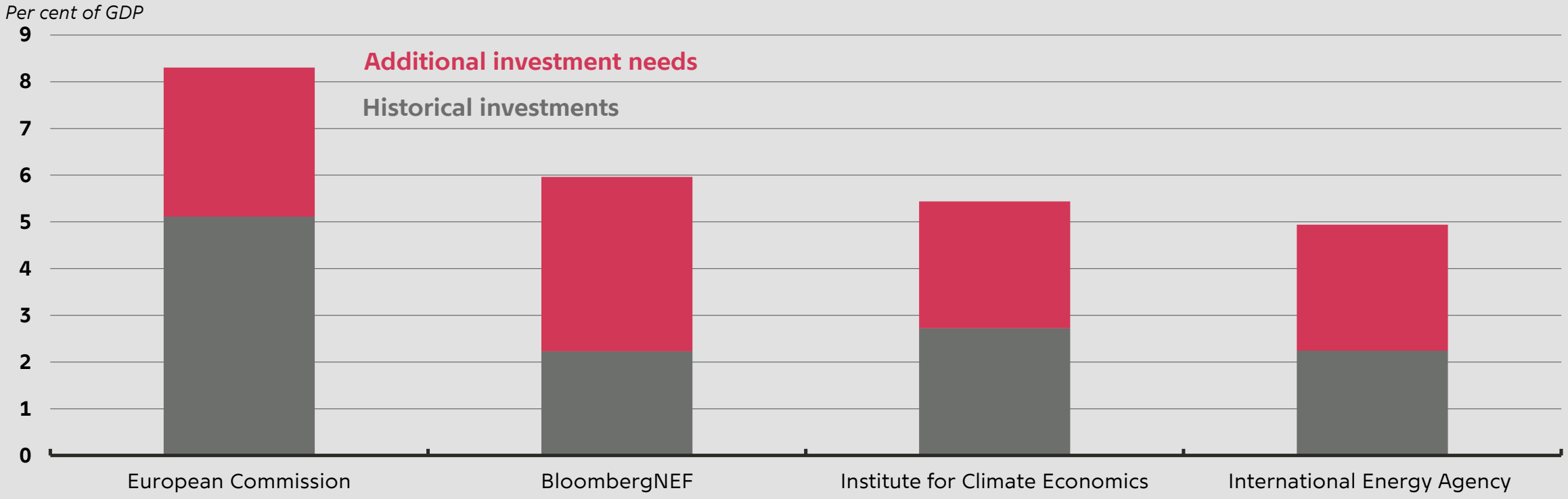
Climate change related activities at Danmarks Nationalbank



2. Investment needs and financing

The green transition requires considerable investments

Annual EU investment needs



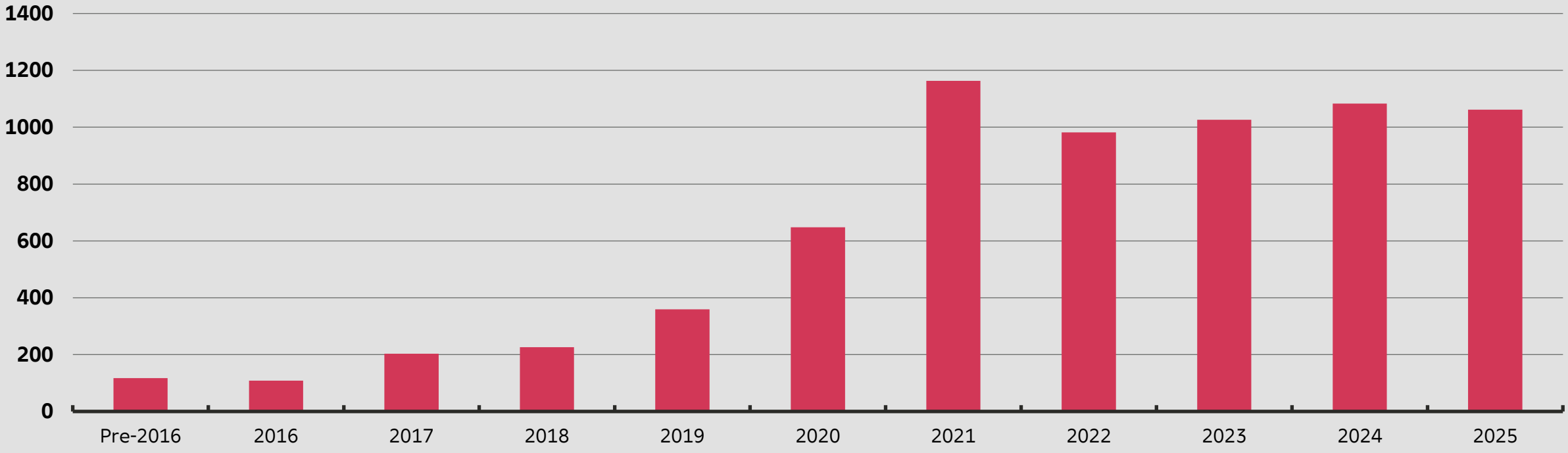
Note: The figure shows the total annual investment need in the EU, i.e. the sum of historical investments and additional investment needs. Historical investments refer to annual averages: European Commission (2011–2020), BloombergNEF (2023), the Institute for Climate Economics (2022) and the International Energy Agency (2021–2023).

Source: Carolin Nerlich, et al. 'Investing in Europe's Green Future: Green Investment Needs, Outlook and Obstacles to Funding the Gap', *Occasional Paper Series*, no. 367, European Central Bank, 2025.

Global issuance of sustainable finance

Global sustainable bond issuance accelerated from 2018 to 2021 and has since levelled off

Global labeled sustainable bond annual issuance, USD bn

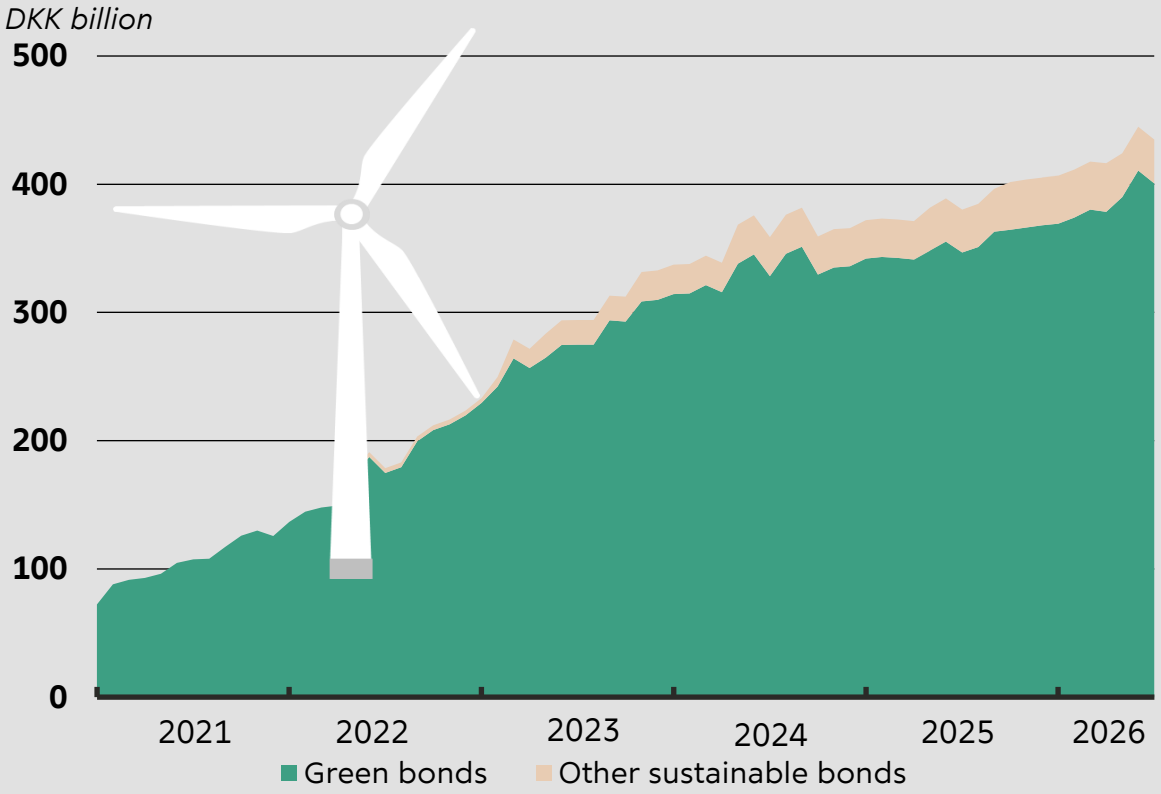


Note: The amount of green, social, sustainability, sustainability-linked, and transition bonds issued.

Source: World Bank based on Environmental Finance Data.

Danish issuance of sustainable bonds

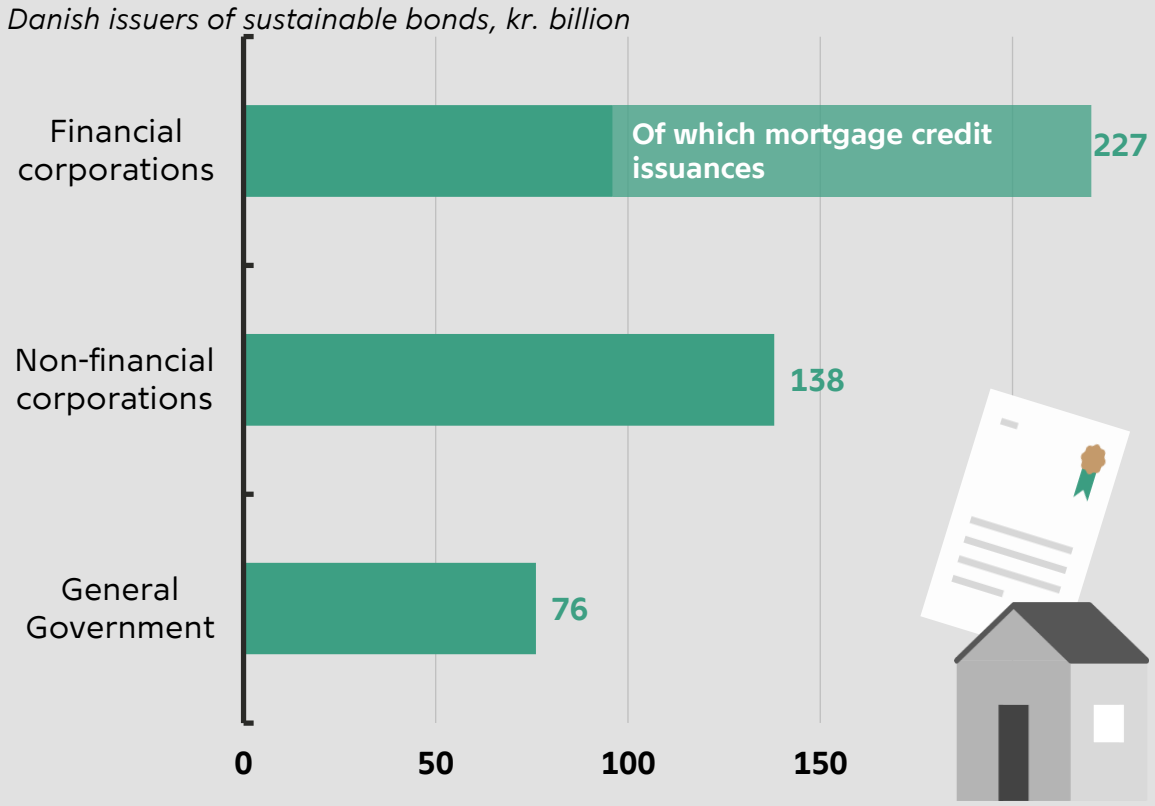
Green bonds account for most of the issuance



Note: Nominal value. "Other sustainable bonds" cover sustainability-related issues. No Danish social bonds have been issued, nor have any sustainability bonds that combine both green and social projects.

Source: Danmarks Nationalbank.

The largest Danish issuers are the financial companies – including mortgage banks



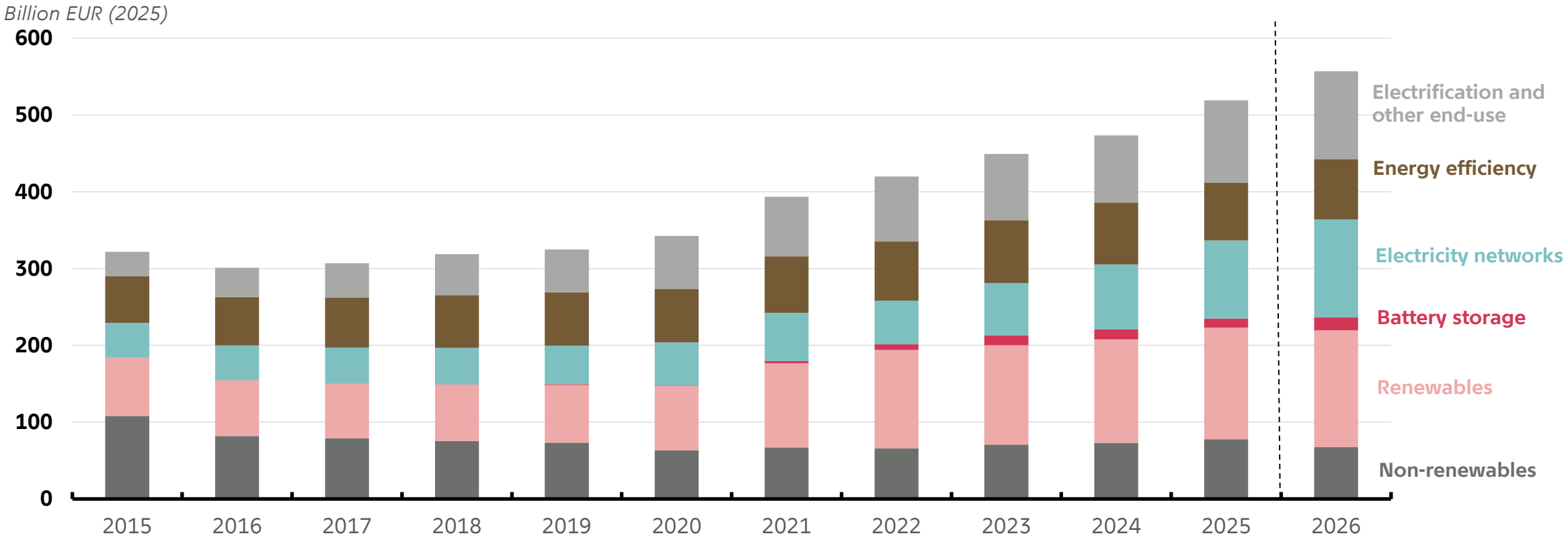
Note: Nominal value. Issuance of sustainable bonds at the end of August 2026.

Source: Danmarks Nationalbank.

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Looking beyond the label: investments in clean energy infrastructure are increasing in Europe

Annual energy investment in Europe



Note: IEA estimates for 2026. Europe includes EU27 and Albania, Bosnia and Herzegovina, Gibraltar, Iceland, Kosovo, Montenegro, North Macedonia, Norway, Serbia, Switzerland, Türkiye (Turkey), United Kingdom.
Source: IEA (2026), World Energy Investment 2026.

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3. Incentives and policies matter for investments

Financing follows price incentives and policies



Carbon pricing



Credible and predictable public policy



Well-functioning markets



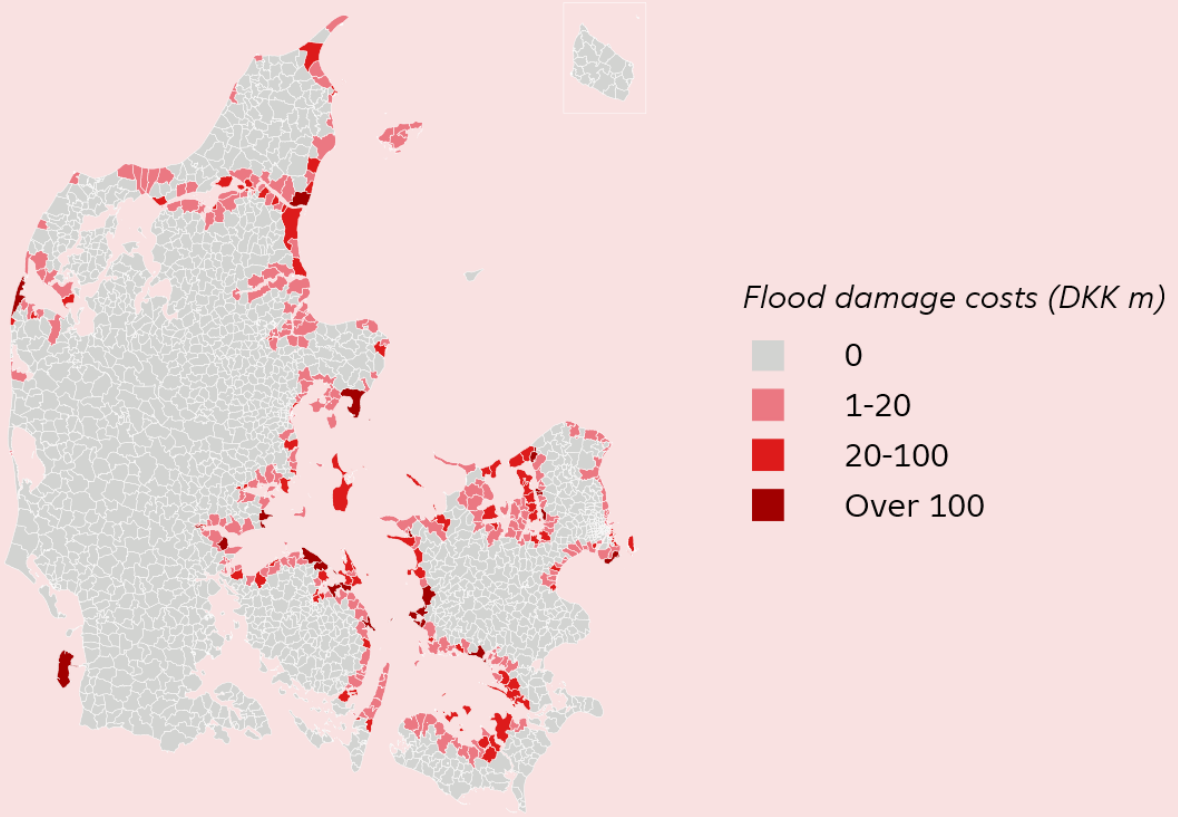
International and national coordination

CASE A: Resilience to storm surges in Denmark

Rising storm flood losses highlight the need for climate adaptation

- Losses from a single extreme event could more than triple by mid-century.
- Severe losses for affected households and firms, but only modest credit losses for banks and MCIs.
- Simpler cost-allocation frameworks and risk-based flood insurance can accelerate climate adaptation and reduce future losses.

Estimated damage costs from a single extreme storm surge in the mid-century period, by parish.



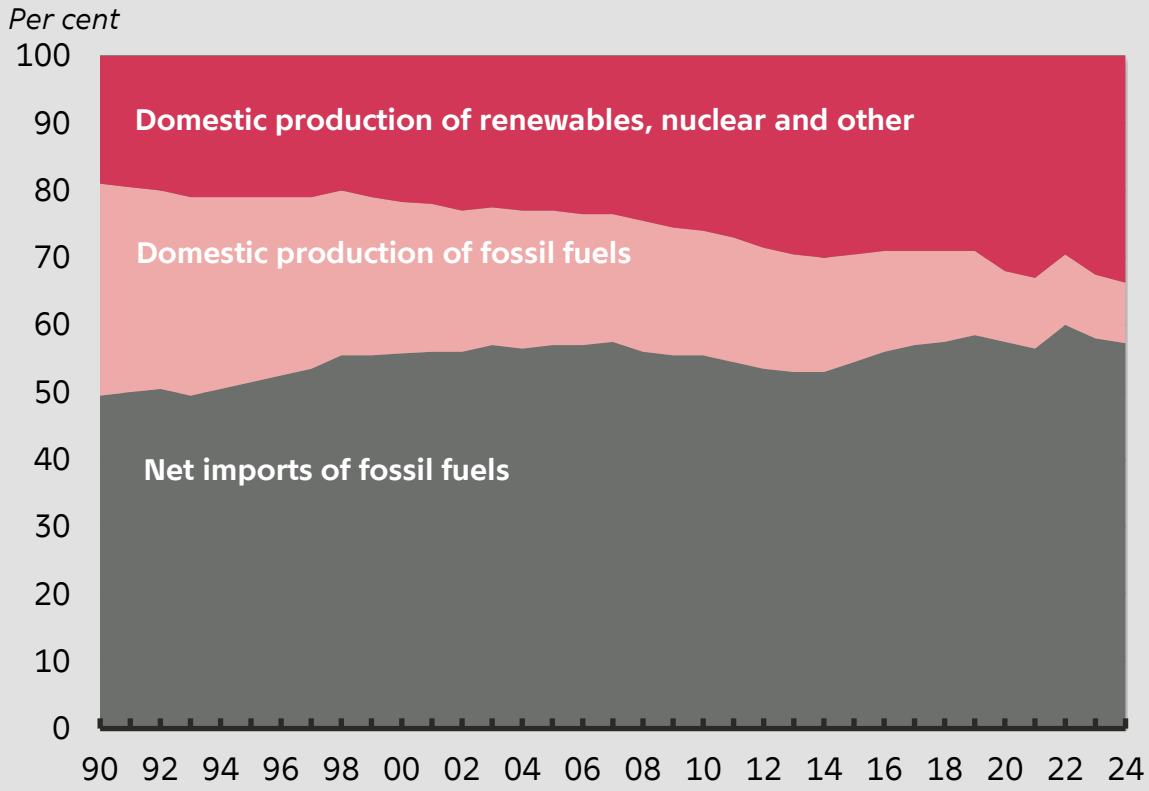
Note: The storm surge footprint is based on the coastal stretches affected by Storm Bodil in 2013. Colors indicate total costs by parish, including both direct damage costs and business interruption losses.

Sources: Technical University of Denmark (DTU), the Danish Building and Housing Register (BBR), and own calculations.

CASE B: Integrating European energy infrastructure

Potential for integrating EU electricity markets for greener, more secure and cheaper energy

Reliance on imported fossil fuels exposes the EU to external shocks



Note: Shares of gross available energy.
Source: Eurostat.

EU industrial electricity prices are twice as high as prices in the United States or China, impacting competitiveness.

Source: European Commission.

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4. Conclusion

Can sustainable finance save the planet?

Not alone.

Financing of climate mitigation and adaptation will not be sufficient without **price signals**, credible and predictable **public policy**, well-functioning **markets** and international and national **cooperation**.

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Thank you.