

## Climate change: adapting to avoid the prisoner's emissions dilemma - Remarks by Governor Makhlouf at EPA Annual Climate Change Conference

15 May 2024 Speech

### Introduction<sup>1</sup>

Good morning. Thank you for the invitation to speak to you today. The conference theme – specifically increasing the resilience of our communities and ecosystems to climate impacts – is fundamental to Ireland's wellbeing over the next century.

I don't feel the need to explain to this audience why that statement is true, nor the need to justify why the Central Bank is interested in the impact that a changing climate is having on the way our economy produces the goods and services that people want, on the type of infrastructure we need, on the way our financial system functions and, quite simply, on the way we live our lives. Climate change is affecting the economy and it is affecting the capacity of central banks across the world to meet their objectives of maintaining price and financial stability and to support broader economic policies.

All transitions pose challenges and climate change is one of the three significant economic transitions we are undergoing right now. I will not talk about digitalisation or demography today but one characteristic of all these transitions is that the choice to remain as we are isn't available. The status quo option does not exist. What does exist is the opportunity to manage the transitions.

In the case of our changing climate, the world has decided that it wants to manage it by prioritising the decarbonisation of our economies as, to state the obvious, the alternative isn't appealing. Time is not our friend here. The world agreed in Paris in 2015 to limit the increase in the average global temperature to 1.5 degrees Celsius above pre-industrial levels by 2050. As things stand, climate scientists are telling us that the world is not on the path to achieve that. In fact we are not going to limit the increase to 2 degrees: last year the UN concluded that the world was on track for an average increase of 2.9 degrees, and even that will only be achieved if all commitments to mitigation measures are implemented by governments.<sup>2</sup> In other words, we are heading for a global temperature rise far above the Paris Agreement goals.

Those somewhat grim facts tell me two things. First, we must carry on with the transition to net zero and, second, we have to plan for a world that is going to have a different climate to what we have been used to. The speed and depth of decarbonisation targets are unprecedented, but they are also technically feasible and, without doubt, represent the lowest cost route for society in the long-run. Climate change and climate damages should peak this century, if the globe meets its emissions targets. Until then, we will also need to adapt.

The need to adapt, the need to transition to something different is uncomfortable for households, businesses and the community as a whole. This is understandable given the scale of change ahead. However, as a society, we should also take time to visualise the endpoint: a country with almost no emissions, cleaner air, cheaper energy, less energy poverty and, most importantly, part of a world that is on a sustainable environmental pathway that is safe for the next generation.

There are also clear economic benefits but let me mention one: over the past ten years, €65bn left Ireland through energy imports.<sup>3</sup> By 2050, Ireland has the potential to be a major renewable electricity exporter.

### What are the key risks to the economy and financial system?

Let me take a few minutes to describe how we view climate risk in the financial sector. The health of the financial system is directly dependent on the health of the economy, and climate change has real and significant consequences for our households and businesses.<sup>4</sup>

Take, for example, a major flooding event in an industrial estate. Affected businesses experience damage to machinery, stock and buildings, and disruptions to production and output. Depending on insurance coverage, such an event has implications for business costs, insurance coverage, revenues and, ultimately, profitability and jobs.

Such impacts are felt by banks in two ways: first, the likelihood of any existing loans being repaid has instantly declined, and, second, if the loan is secured by physical collateral at impacted locations, the flood event has reduced the value of the bank's security, and also the borrower's future access to credit. It is already very clear that future flood risks are unevenly spread across

the country with only specific areas and certain sectors being vulnerable, and which will require targeted policy intervention.

The decarbonisation of the economy also has financial sector risk implications. Businesses and households will need to do more with less energy, and switch to lower emission inputs and fuels. Such changes are only possible with new investments into new technologies, and these investments will probably require external financing. For the financial sector, these ‘transition risks’ encompass the negative changes to business costs, revenues and profits as a result of future climate-related shifts in consumer or investor sentiment or of government policy.

Like physical risks, transition risks are also unevenly spread, and will be higher in sectors with carbon intensive inputs, processes or outputs. Some highly intensive sectors will be required to make very dramatic changes to their business models if they are to survive in the new, sustainable economy. There will also be winners in the coming decades. Sectors and countries that offer lower-emission products and services will be more resilient.

Transition risk differences are prevalent for households, too: a family living in an apartment within walking distance to services will have a considerably less expensive transition than one in a large, isolated, detached house. It is important that transition supports consider these cost inequalities if we are to bring everyone along on this journey, although we must accept that some types of business models and assets may no longer be viable commercially.

#### **Planning for uncertainty**

To plan a safe path through the 21<sup>st</sup> Century we must forecast risk. While the world will reach net zero this century, there is considerable uncertainty regarding when exactly. It is, however, certain that the frequency and severity of weather and climate-related damages will increase over the next forty or so years, and sectors and communities will need to adapt to these changes.

How much we need to adapt to physical risks depends on which damage pathway the world is on, which of course depends on emission reductions outside our borders. While Ireland’s greenhouse gas emissions per capita puts us in the top fifth of most emitting nations, our small population and land area means we play a minor role in total global emissions (about one tenth of one percent in 2022).<sup>5</sup>

Ireland is therefore a ‘physical risk taker’ and we must monitor global trends to understand our own future physical risks. Moreover such statistics should not be used to reduce the urgency of meeting our own mitigation targets: the net zero objective will, regardless of what happens abroad, decouple our economy from fossil fuels and put us on the lowest risk pathway. Over the coming decades, it is of course vital that all countries push towards targets together, if we are to avoid a very dangerous ‘prisoner’s emissions dilemma’ where the pursuit of individual country gains leads to worse long-run outcomes for all.

Limited past global progress – both in Ireland and elsewhere – has increased the decarbonisation challenge. The world now emits 50% more emissions per year than it did 25 years ago, increasing the amount of carbon dioxide in our atmosphere by a further 14%.<sup>6</sup> As I said, we are not on track to meet the Paris Agreement’s 1.5 degree lower safety bound.<sup>7</sup>

Rising temperatures have already led to higher damages. The World Meteorological Association estimate that economic losses from weather, climate and water have increased sevenfold since the 1970s.<sup>8</sup> Europe is heating faster than other regions and experiencing more intense heatwaves. In 2023, Greece witnessed the continent’s biggest wildfire in history, with very large fires also occurring in Portugal, Spain and Italy.<sup>9</sup>

Damage trends are very worrying, and will increase until the globe turns the corner on emissions. Recent mitigation developments bring optimism. We may even be in the midst of a transition tipping point: increased rollouts of solar, wind, nuclear, heat pumps and electric vehicles is now putting a dent into emissions. In 2023, we saw a 4.5% decline in emissions across advanced economies, a record for a year with positive economic growth.<sup>10</sup> Looking ahead, we can also trust in technical change: the world’s brightest are on the verge of multiple disruptive technology breakthroughs, including ‘next generation solar’, solid-state batteries, green hydrogen and nuclear fusion.

Our uncertainty regarding the path of physical damages is also rooted in global policy uncertainty. The transition is dependent on real economy investments, but only governments can change the technology choice environment and steer the economy to net zero. There is no silver bullet policy when it comes to effective climate policy, but reaching targets on time will be more challenging without international coordination on carbon pricing. We also need to be careful not to prevent innovation that supports the transition as a result of geopolitical conflict or the misguided hope that autarky through strategic autonomy has more benefits than costs and that it will somehow not damage our efforts to achieve net zero.

The economic rationale for using taxation to guide the economy is strong, and numerous studies show that the carbon tax approach to decarbonisation will be the lowest cost for society.<sup>11</sup> The transition embodies millions – probably billions – of technological and behavioural decisions to switch from old and emitting, to new and sustainable. However, the switch will only happen if the benefits outweigh the costs for individual adopters. A slow, credible and predictable increase in emission taxes raises long run fossil fuel price expectations, increases the benefits of switching, and raises the incentives for businesses developing emission-saving innovations. We have control of our own carbon pricing – and we are on the right path – but international agreement in this area will be vital for global decarbonisation in the coming years.

## **Adaptation in the real economy**

Domestic adaptation, however, is within our control. This means different things to different sectors, and different sectors will understand their own climate vulnerabilities and specific solutions, from farmers switching crops and investing in water management, to domestic manufacturers diversifying their supply chains across more locations. Such solutions lower risk from external events, increase profitability and protect jobs. In aggregate, adaptation improves the resilience of the wider economy to climate change, which also lowers risk to the financial system.

Ireland will have more frequent and severe flood events over the coming decades. Flood mapping by the Office of Public Works has increased our understanding of this risk over the last decade.<sup>12</sup> Households, businesses and public authorities now have access to more granular information on flood likelihood both today and over the next century. Such risks are relatively high here. For example, recent estimates from the European Central Bank show the Irish financial system's exposure to flood risk (domestic *and foreign*, combined) in the commercial sector is among the highest in the euro area.<sup>13</sup>

Where risks are deemed too high, properties may end up being uninsurable, which has knock-on implications for the riskiness of mortgages held by banks. There is evidence that some lenders are already considering these implications. And we have seen, albeit overseas, lenders withdrawing from granting mortgages to properties deemed to be at a high risk of flooding.<sup>14</sup>

While global decarbonisation must be the first line of attack to lower physical risk growth, we can also protect our households and businesses by investing in adaptation measures such as flood defences. First and foremost, flood defences protect communities and livelihoods from severe hardship. But they also maintain individual household and business asset values, increasing their economic and financial resilience.

Since 2010, €600M has been invested in 55 flood protection schemes to the benefit of over 13,000 properties.<sup>15</sup> Additional schemes, for which funding has been ring-fenced under the National Development Plan, will protect an additional 23,000 properties by 2030.<sup>16</sup> Progress has already been made, but the clock is ticking and the window of opportunity to take preventative and proactive action may be closing faster than we realise.

Impacts from damage are alleviated by insurance. Insurers play a critical role in society, providing individuals and businesses with security and confidence in their daily lives and activities. The insurance market, however, is facing major challenges. Without adaptation, rising physical risks have clear implications for insurers and policyholders: more frequent and severe events will bring more claims, higher premiums and lower insurance coverage in risky areas.

Furthermore, diversifying country-level risks through the reinsurance market is becoming more costly and restrictive<sup>17</sup> given that climate risks are rising in many regions simultaneously. Recent large increases in household insurance costs in the United States could be a warning sign for other regions. While it is important to acknowledge these challenges, it is equally important to highlight that there are still opportunities for insurers to continue to play a crucial societal role, create sustainable business models, and remain relevant in this fast-changing world.

In areas where defences are neither economically or technically feasible, or in situations where defence infrastructure will take many years to complete, lessons from international policy innovations may help prevent a squeeze on underwriting here. Consideration could be given to interim measures that could mitigate flood risk until defence infrastructure is in place. Reducing risk through adaptation allows insurers to retain a risk-based pricing approach<sup>18</sup> and potentially expand risk appetite and offers of insurance. This might be achieved through recognition of measures put in place by policyholders to lessen the risk.

Similarly, public-private collaboration, whether it is through provision of expertise or another mechanism such as a partnership, also enables insurers to retain a risk-based approach to pricing. It may be possible to set up risk sharing/solidarity schemes where funds are pooled to support insurance provision in risky areas.

## **Adaptation in the financial sector**

The financial sector must also adapt from within, which means embedding climate risks into our models, systems, processes and policies. Climate change has forced the financial sector to consider risk over considerably longer time horizons. For example, up until very recently, a bank stress test would explore resilience to economic shocks over the course of a typical business cycle. With climate change, we are now looking at risk over decades rather than years. This brings new challenges, and has required new data collections and new models.

The financial sector's information environment is also adapting to the transition, and we appear to be in the midst of a climate risk transparency revolution.<sup>19</sup> Investment flows follow profitability expectations, and climate risks, both in terms of the costs of decarbonisation and the likelihood of physical damages, are growing investor considerations. With new disclosure regulations for business and investments, there is now a growing flow of climate data sources. This new information environment, coupled with strong government policy and commitments to targets, should align investment flows with transition goals.

The policy mechanisms within our current prudential framework will also be adapted to contain climate risks. We have made it very clear that we will use all the tools at our disposal to enforce appropriate climate risk management, strategy consideration and internal governance. While it is a *bit* too early to conduct a wholesale recalibration of the capital framework, the availability of data and precision of risk forecasting is improving very fast and if risks are clear, large and quantifiable, we will have a strong case to act. Such changes would align financial flows with transition risks, and support broader emission targets.

## Conclusion

Let me conclude.

Past climate models predicted the present, and these same models will now guide us back to sustainability. If nations meet their targets, the climate should stabilise this century and take the world off its current dangerous trajectory. A focus on mitigation continues to be essential: an orderly transition is far preferable to alternative scenarios of doing nothing or doing too little too late. We need to avoid seeing 2050 as far away in the horizon and concluding that the problem will take a much longer time coming than everyone thinks, only to find it happening much faster than you would have thought.<sup>20</sup>

Achieving net zero by 2050 is unquestionably the lowest cost option for society, the economy and the financial system. Different sectors have different roles and challenges in the transition. But net zero – *at its core* – is a real economy transition, ultimately dependent on business and household decisions to upgrade and switch.

The financial sector's role is clear. Private sector investment targets will only be achieved through significant financing, whether by banking or capital markets. Failure to decarbonise financial flows will lead to a build-up of climate risks in the system. Central banks have a responsibility to monitor and forecast these risks, and then to act to maintain financial stability.

The government's role is also clear, as it has to steer the real economy to net zero by creating an environment that provides the right incentives and favours low emission choices.

That much we know. We also know that change is coming and that we can strengthen areas of vulnerability though adaptation, and through integrated, multidisciplinary thinking. And, as I have argued before, our macroeconomic framework needs a greater intergenerational focus.<sup>21</sup>

No doubt there are many things we don't know and we have to continue to rely on science to help us map out the journey. But it's a journey we have to travel albeit that it will likely be, to paraphrase the Greek poet Cavafy, "full of adventure, full of discovery", an achievable and worthwhile journey and "arriving there [should be what we're] destined for".<sup>22</sup>

[1] My thanks to James Carroll and Fiona Woods for their contribution to my remarks.

[2] [https://www.unep.org/interactives/emissions-gap-report/2023/#section\\_-1](https://www.unep.org/interactives/emissions-gap-report/2023/#section_-1)

[3] Figures directly supplied to Central Bank staff from CSO

[4] See <https://www.centralbank.ie/docs/default-source/publications/financial-stability-notes/climate-risks-in-the-financial-system.pdf> for discussion on climate-economy-financial linkages

[5] [https://edgar.jrc.ec.europa.eu/report\\_2023](https://edgar.jrc.ec.europa.eu/report_2023)

[6] <https://gml.noaa.gov/ccgg/trends/data.html>

[7] <https://www.ft.com/content/8927424e-2828-4414-86b7-f3a991214288>

[8] <https://wmo.int/publication-series/atlas-of-mortality-and-economic-losses-from-weather-climate-and-water-related-hazards-1970-2021>

[9] <https://climate.copernicus.eu/widespread-floods-severe-heatwaves-esotc-2023-puts-europes-climate-focus>

[10] <https://www.iea.org/reports/co2-emissions-in-2023>

[11] <https://www.esri.ie/system/files?file=media/file-uploads/2015-07/WP246.pdf>

[12] <https://www.floodinfo.ie/map/floodmaps/>

[13] [https://www.ecb.europa.eu/stats/all-key-statistics/horizontal-indicators/sustainability-indicators/data/html/ecb.climate\\_indicators\\_physical\\_risks.en.html](https://www.ecb.europa.eu/stats/all-key-statistics/horizontal-indicators/sustainability-indicators/data/html/ecb.climate_indicators_physical_risks.en.html)

[14] <https://www.theguardian.com/business/2024/apr/30/nationwide-stops-lending-on-some-flood-risk-properties>

[15] <https://www.floodinfo.ie/scheme-info/>

[16] <https://assets.gov.ie/277286/bde92010-a729-408f-b801-7b50c37086e3.pdf>

[17] Increase in the level of losses to be reached before reinsurance kicks in.

[18] Important from a prudential and market perspective – risk-based pricing provides a strong signal to relevant parties to proactively manage the risk to which they are exposed (reduces moral hazard).

[19] <https://www.ecb.europa.eu/ecb/climate/climate-related-financial-disclosures/html/index.en.html>

[20] The Hemingway/Dornbusch hypothesis: <https://www.centralbank.ie/news/article/speech-gabriel-makhlouf-chatham-house-waddesdon-club-of-financial-leaders-01-june-2022>

[21] <https://www.centralbank.ie/news/article/blog-intergenerational-macroeconomics>

[22] C.P Cavafy, *Ithaka* <https://www.poetryfoundation.org/poems/51296/ithaka-56d22eef917ec>