Society of Actuaries in Ireland
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CLIMATE CHANGE MATTERS

Climate change affects everything. In this statement, the Society of Actuaries in Ireland affirms its commitment to interdisciplinary learning, cooperation and action, with a view to helping to secure a sustainable future for everyone.

Key messages

- Climate change will have major impacts on society. The impacts will be more severe the higher the level of warming and/or the lower the level of government, institutional and societal action.
- Climate policies need to address both reducing greenhouse gas emissions to mitigate climate change and adaptive measures to deal with the expected impacts of climate change.
- The Society of Actuaries in Ireland ('Society') supports the goals of the Paris Agreement and also supports climate action to achieve those goals through an orderly, policy-driven transition that is just; that is, one that seeks to ensure that the substantial benefits are shared widely while also supporting those who stand to lose economically.
- Actuaries need to understand the risks associated with climate change and the net zero transition and to factor consideration of these risks - and corresponding opportunities - into actuarial advice.
- The Society has joined the Professional Bodies Climate Action Charter, recognising that climate change is a complex and multidisciplinary issue and requires the transformation of infrastructures governed by multiple professions. In joining the Charter, the Society will work with our counterparts in other professions to contribute to a professional bodies forum for interdisciplinary learning, cooperation and action.
- As risk professionals, actuaries can contribute in multiple ways, including advising the insurance, banking, pension, investment, government and other sectors on identifying, assessing, managing and disclosing the financial and economic risks and opportunities arising from climate change.
- The Society aims to contribute to the work of Government and other institutions in responding to climate change.

Introduction

The Society of Actuaries in Ireland recognises that the world's climate is changing at an unprecedented rate and that greenhouse gas ('GHG') emissions from human activity are the main cause. Climate change is already having major effects on the environment, the economy and society, and these effects are increasing over time. The effects of climate change are global and systemic. There is now under a decade to act in order to avoid the worst impacts of the climate crisis.

The Society supports the aim of the Paris Agreement to limit climate change to an increase of substantially under 2°C above pre-industrial temperatures and to pursue efforts to limit temperature increases to a maximum of 1.5°C. We recognise that, in order for there to be a reasonable probability of achieving this aim, there must be a transition to a global economy that has no net greenhouse gas emissions ("net zero") by 2050.

We consider it important to highlight that the world is not on target to meet the Paris Agreement goals. Without increased action , the world will still emit double the greenhouse gas emissions in 2030 that are allowed under the 1.5°C limit of the Paris Agreement. The world is heading to a warming of 2.4°C with 2030 targets and even higher, 2.7°C, with current policies.[1]

Moreover, in order to achieve net zero by 2050, the deployment of carbon dioxide removal ('CDR') methods is unavoidable. These technologies have yet to be proved feasible at the required scale.[2]

Ireland has an objective of climate neutrality by 2050 at the latest, with an interim target of a 51% reduction in GHG emissions by 2030 (relative to a baseline of 2018). According to the latest report by the Environmental Protection Agency, further new measures are required, in addition to implementation of all current climate plans and policies, in order to achieve this target.[3]

The impact of climate change

Climate change will have a major and wide-ranging impact as follows:

- Extreme weather events: the frequency and severity of extreme weather-related events, including floods, fires, storms, drought and heatwaves, are expected to continue to increase and more locations will be subject to such events.
- Rising surface temperatures, warming of the oceans and acidification, reduction in land and sea ice, rising sea levels.
- Scarcity of resources: water, terrestrial and marine food production, forestry, biodiversity and ecosystems will be adversely impacted.
- Population and health: wider, faster and more severe spread of infectious illnesses and vector-borne diseases, and increases in heat-related mortality and morbidity, are likely.
- Globally, approximately a billion people are projected to be at risk from coastal-specific climate hazards in the mid-term under all scenarios. The percentage of the population exposed to deadly heat stress is projected to increase from today's 30% to 48 - 76% by the end of the century.[4]
- Economic value of assets: the value of new and legacy investments in many sectors will change in line with climate change and a transition to a net zero economy.

Some of the climate change already set in motion—such as continued sea level rise—is irreversible over hundreds to thousands of years. Even if global warming is limited to 1.5°C or 2°C, it will still have a major impact on human and natural systems, with a much more substantial impact in the event of 2°C compared to 1.5°C warming. Hence, we need to plan for the effects of climate change and take suitable action to prevent or minimise the damage they will cause. Examples of adaptation actions include prioritising drought tolerant planting, building and reinforcing flood defences, or managed retreat from locations that will no longer habitable.

Climate policies need to address both reducing greenhouse gas emissions to mitigate climate change and adaptive measures to deal with the expected impacts of climate change.

[1] https://climateactiontracker.org/publications/despite-glasgow-climate-pact-2030-climate-target-updates-have-stalled/
[2] https://www.ipcc.ch/report/ar6/wg3/resources/spm-headline-statements/
[3] https://www.epa.ie/publications/monitoring--assessment/climate-change/air-emissions/EPA-Ireland's-GHG-Projections-Report-2021-2040v4.pdf
[4] https://www.ipcc.ch/report/ar6/wg2/about/frequently-asked-questions/keyfaq3/

Climate Science: A Summary for Actuaries

The International Actuarial Association ('IAA') and the Intergovernmental Panel on Climate Change ('IPCC') have co-developed a Summary of Climate Science tailored to the actuarial community. This is an essential reference for the actuarial profession since actuaries, as risk professionals, need to understand the impacts of climate systems and climate change. Such impacts will affect how risks are underwritten, priced, managed and reported, whether for general insurance, life insurance, pensions, other financial institutions, and social security. It is important for actuaries to understand the magnitude of the potential changes, the uncertainty of their frequency and intensity, and the inherent volatility of such risks, and to factor this knowledge into their advice to their clients and employers.

Although written for actuaries, it is recommended for a wider audience as providing a useful distillation of the IPCC Sixth Assessment Working Group I Report (2021).[5]

The report highlights that, unless there are immediate, rapid and large-scale reductions in greenhouse gas emissions, limiting global warming to 1.5°C or even 2°C will not be possible. To limit global warming, strong, rapid and sustained reductions in emissions of carbon dioxide, methane, and other greenhouse gases are necessary.

Some key points to highlight from the joint IAA and IPCC summary[6]:

- Human influence is already making many extreme climate events, including heatwaves, heavy rainfall and droughts, more frequent and severe. Globally, events that were previously considered 1-in-50-year extreme heat events have become about five times more likely, while events previously considered 1-in-10-year events are now almost three times more likely. The frequency and intensity of heavy precipitation events have increased in most regions. Droughts have become more severe in several regions.
- The unprecedented nature of some of the changes observed to date indicates that methods using past data to calculate impact and risk may not be applicable for projecting future risks and impacts. Climate statistics calculated in the 20th century or early 21st century, such as the likelihood of a given climate extreme in a given region, may no longer apply. This can alter the risk estimation of future events.
- Crossing 1.5°C global warming is close. Global warming levels of 1.5°C and 2°C will be exceeded unless deep reductions in carbon dioxide and other greenhouse gas emissions occur in the coming years and continue for decades. The best estimate is that global surface temperature, averaged over a 20-year period, will reach 1.5°C during 2021-2040. Exceeding 2°C global warming is only avoided in the two IPCC scenarios with the most stringent mitigation measures.
- With every additional increment of global warming, the pattern of observed change intensifies in every region. Temperature changes will continue to be amplified over land and in the Arctic, compared to the global average. Continued global warming is projected to further intensify the global water cycle, its variability and the severity of wet and dry events. As warming increases, increasing areas of land will experience changes in precipitation and, on average, very wet seasons will become even wetter and very dry seasons more intense.
- By 2050, global average sea level will rise by 15-30 cm above the present-day level, almost independently of how quickly global greenhouse gas emissions are reduced. By 2050, extreme sea level events that occurred once per century in the recent past will occur globally 20 to 30 times more frequently. Beyond 2050, sea level will continue to rise, but with a rate and

[5] https://www.ipcc.ch/report/ar6/wg1/

[6] https://www.actuaries.org/IAA/Documents/Publications/Papers/Climate_Science_Summary_Actuaries.pdf

magnitude strongly dependent on choices regarding future greenhouse gas emissions. By 2100, previously once-per-century extreme sea level events will occur approximately 160 times more frequently (if warming is limited to 2°C), i.e. nearly twice every single year, on average.

- Climate changes outside of the very likely range cannot be ruled out. The probability of low-likelihood, high impact outcomes increases for higher global warming levels but they could still occur even within the very likely warming ranges. Abrupt responses and tipping points, such as strongly increased Antarctic ice-sheet melt and forest dieback, cannot be ruled out. Low-likelihood outcomes should be considered as part of risk assessment processes.

Policy position

The Irish economy is currently heavily reliant on fossil fuels and sectors that have high greenhouse gas emissions[7], and a transition to a net zero emissions economy will have significant implications for Irish communities and businesses. The Society supports climate action to achieve the goals of the Paris Agreement through an orderly, policy-driven transition that is just; that is, one that seeks to ensure that the substantial benefits are shared widely while also supporting those who stand to lose economically.

The Society supports the development of public policy to improve resilience against physical climate risks and the implementation of adaptation measures to reduce the vulnerability of Irish communities to such risks.

The Society seeks to promote a well-informed public debate on responses to climate change, and to support actuarial contributions to the development of effective responses to climate change.

The Society aims to support its members in their understanding of climate risks and opportunities and encourage their incorporation into actuarial advice.

Quantifying and disclosing the financial impacts of climate change is an important way to encourage climate action. The Society supports better disclosure of consistent and robust information about climate risk by corporates and other market participants, including disclosures in line with the Task Force on Climate-related Financial Disclosures ('TCFD') and the Corporate Sustainability Reporting Directive ('CSRD'). We note that the CSRD aims to ensure that companies publicly disclose adequate information about the sustainability risks and opportunities they face, as well as the impacts that they have on people and the environment (i.e. applying the principle of "double materiality").

We aim to contribute to the work of Government and other institutions as well as supporting the role that our members play in advising their clients and employers.

How actuaries can contribute

As risk professionals, actuaries can contribute in multiple ways, including:

- Advising their clients and employers in the insurance, banking, pension, investment, government and other sectors on identifying, assessing, managing and disclosing the risks and opportunities arising from climate change. This can include disclosure under the recommendations of TCFD, regulatory reporting to the Central Bank of Ireland and the Pensions Authority, advice to boards of directors in meeting their corporate responsibilities and advice on sustainable investing.

[7] https://www.rte.ie/news/environment/2022/0905/1320733-where-does-irelands-energy-come-from/
https://www.epa.ie/our-services/monitoring--assessment/climate-change/ghg/energy-/

- Supporting their clients and employers in implementing the requirements of updated prudential regulation under Solvency II. These requirements include addressing climate change risks in pricing, reserving and investment management as well as reflecting the sustainability preferences of customers in insurers' product approval processes.
- Ongoing research into understanding and managing the financial and economic risks and opportunities arising from climate change. This includes development of data sources, methods and tools to enable qualitative and quantitative assessment of climate-related risks and opportunities.
- Development of risk management frameworks for climate-related risks for regulated entities, including methods for assessing pricing implications, setting risk appetites and estimating any additional capital requirements related to climate change.
- Ongoing assessment and scenario analysis of the impact of physical and transition risks and opportunities in investment portfolios, including impacts on insurers, banks, pension funds and investors.
- Bringing complementary skills to emerging fields in climate change adaptation and the transition to a low carbon economy.
- Collaboration with other professionals and stakeholders such as climate scientists, accountants, economists, actuarial associations, governments, regulators, businesses and the public. As an example, actuaries have developed climate indexes to provide an objective measure of changes in climate extremes and sea level across certain territories.[8]

The Professional Bodies Climate Action Charter

The Society has an obligation to its members to provide strong leadership, to deliver up-to-date technical and ethical guidance and to advocate for their work as risk professionals.

Our members, together with professionals from other disciplines, have a duty to protect the public interest and to step up, with a sense of urgency, to help secure a sustainable future.

The Society supports the ambition of the Professional Bodies Climate Action Charter to develop a unified voice for professionals, recognizing that climate change is a complex and multidisciplinary issue and requires the transformation of infrastructures governed by multiple professions.

In joining the Charter, the Society will work with our counterparts in other professions to:

- ensure a holistic approach and develop a common language of sustainability between professions
- contribute to a professional bodies forum for interdisciplinary learning, cooperation and action, and
- leverage greater collective ambition through interdisciplinary coordination.

24th October 2022

[8] https://actuariesclimateindex.org/home/
https://actuaries.asn.au/microsites/climate-index/