

Aviva's Climate-Related Financial Disclosure 2018

Metrics and Targets summary



| Retirement | Investments | Insurance | Health |



“Our business is directly impacted by the effects of climate change. Aviva believes that unmitigated climate-related risks present a systemic threat to financial stability over the coming decades. Our responsibility as leaders is to ensure we are taking actions today to identify, measure, manage, monitor and report climate-related risks and opportunities. We are delighted that we are helping to build a long-term sustainable and superior future for our customers and investors.”

Angela Darlington, Group Chief Risk Officer

Kirsty Cooper, Group General Counsel and Company Secretary

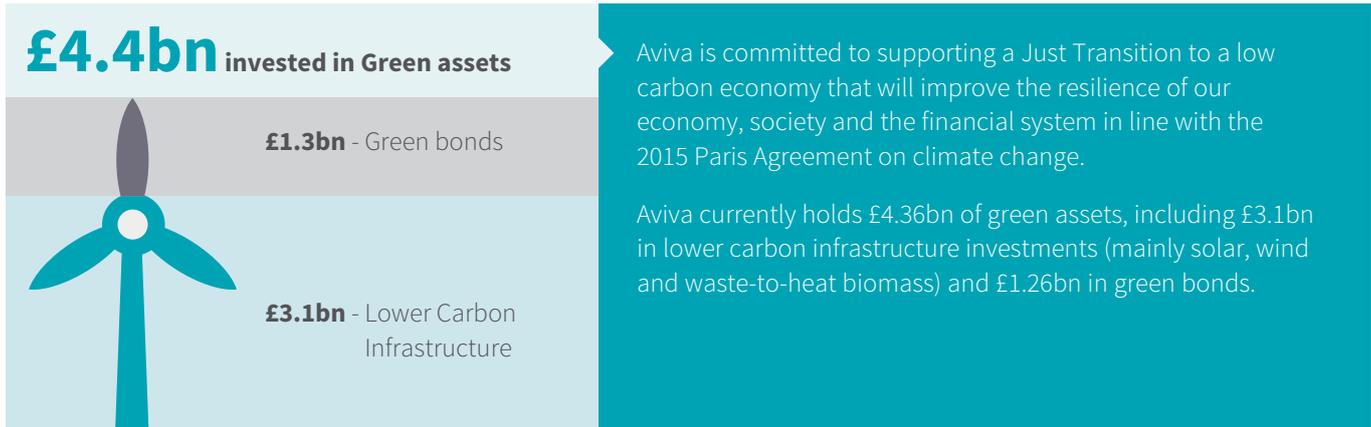
Our strategic response to climate change

In our strategic response to climate change, published in 2015, we focussed on five investment pillars and we continue to further integrate consideration of climate-related risks and opportunities into our insurance products.

Integrate	Invest	Support	Engage	Limit exposure
Integration of Environmental, Social and Governance factors across all asset classes and regions.	Investment of £2.5bn in lower carbon infrastructure between 2015-2020.	Provision of strong and vocal support to transition to a low carbon economy.	Active company engagement and voting to achieve climate resilient business strategies.	Divest highly carbon-intensive fossil fuel companies where sufficient progress is not made.
Optimise reinsurance programme to mitigate impact of extreme weather risk.	Provide products and services that support customers' choice to reduce their environmental impact.	Help customers to build resilience to extreme weather.	Promote customer awareness and risk prevention of climate-related issues such as air pollution.	Limit our underwriting exposure to the most carbon intensive sectors.

The Intergovernmental Panel on Climate Change (IPCC) Global warming of 1.5°C report, published in October 2018 indicates the need to take dramatic action now to keep warming below 1.5°C and the potential severe consequences if this is not achieved. As a result of this emerging information and our internal analysis of the potential impact of climate change, our strategy is being refreshed to accelerate our ambition to be aligned to the Paris Agreement's goal to a transition of 2°C or lower.

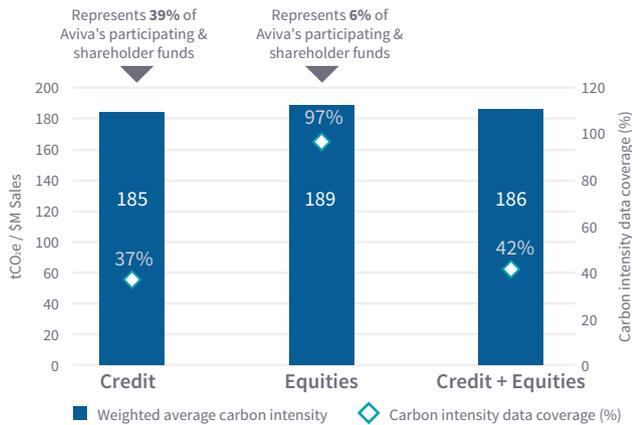
Investment in lower carbon infrastructure



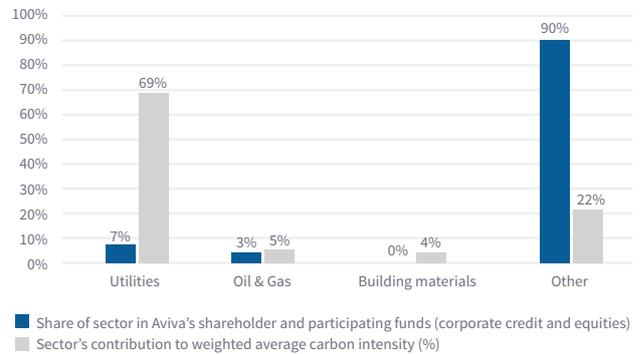
Carbon foot-printing

We have measured our operational carbon emissions since 2004 and we use carbon foot-printing and weighted average carbon intensity data to assess and manage the exposure of our assets to a potential increase in carbon prices. Despite being backward looking, this measure provides a good proxy for assessing exposure of our assets to a potential increase in carbon prices.

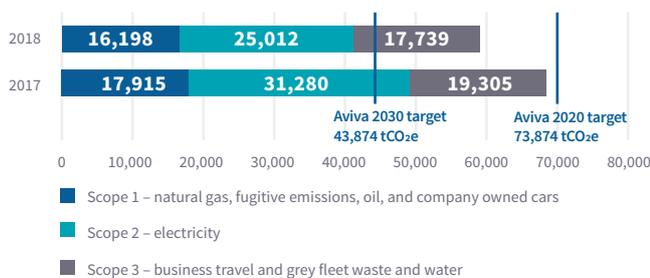
Weighted average carbon intensity (tCO₂e/\$m sales) of corporate credit and equities in Aviva's shareholder and participating funds as at 31/12/2018. Source: Aviva/MSCI.



Aviva's exposure to carbon intensive sectors in its shareholder and participating funds (corporate credit and equities) as at 31/12/2018. Source: Aviva / MSCI.



Absolute operational carbon emissions tCO₂e. Source: Aviva.



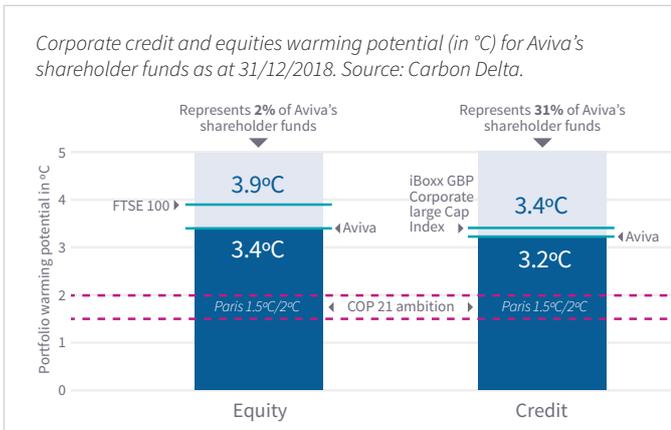
The utilities sector is the largest single contributor representing 7% of the portfolio but it contributes 69% of the weighted average carbon intensity.

We have already achieved our 2020 operational target set in 2010 by reducing our emissions by 60% and we have a long-term reduction target of 70% by 2030 compared to this 2010 baseline.

Aviva has been carbon neutral in respect of our operations since 2006 through the purchase and retirement of carbon offsets from the voluntary carbon market.

Portfolio Warming Potential

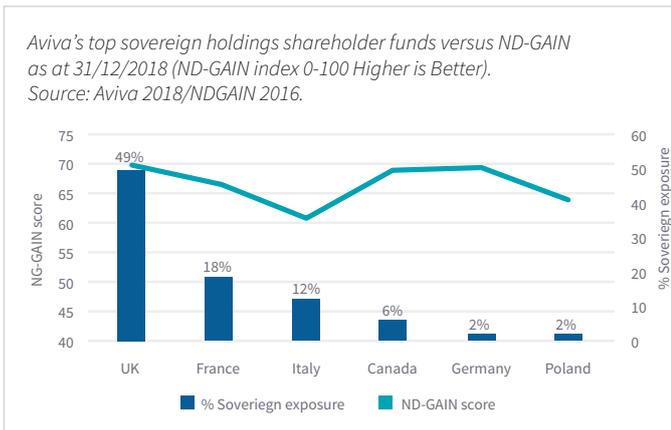
Aviva has used Carbon Delta's (an environmental FinTech) warming potential metric to assess our corporate credit and equities shareholder funds' alignment with the Paris agreement 2°C target. This is calculated as a weighted average of individual issuers' warming potential, which is based on the alignment of each company within the portfolio to the sectoral Greenhouse gas emission intensity needed for each sector to make its contribution to reach the global 2°C target.



The actions we are taking to reduce our investment exposure to carbon intensive sectors over time should lead to a reduction of the warming potential of our investment portfolio. The analysis found that Carbon Delta's warming potential of our equity portfolio at 3.4°C was 0.5°C below that of the FTSE 100 and the warming potential of our corporate credit portfolio at 3.2°C was 0.2°C below that of the iBoxx GBP Liquid Corporate Large Cap Index. This analysis does not include our investments in sovereign, real estate and infrastructure assets where we have heavily invested in green assets.

Sovereign holdings

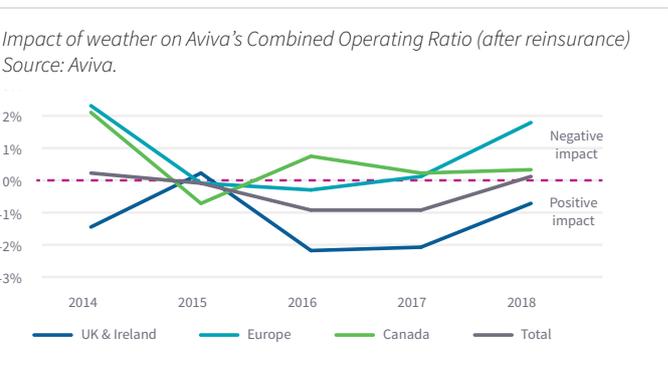
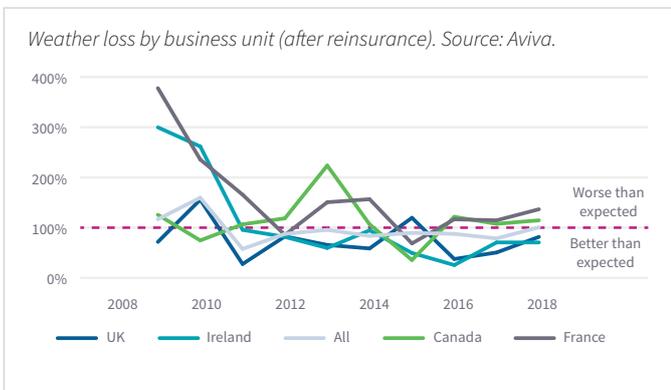
To measure our sovereign holdings exposure to climate related risks and opportunities, we have used the Notre-Dame University's Notre Dame-Global Adaptation Index (ND-GAIN). This measures a country's vulnerability to climate change and its readiness.



For sovereign bonds, Aviva is predominantly exposed to sovereigns from developed markets where physical climate change risk is less likely to have very severe implications for sovereign debt. Aviva has no significant exposure to countries highly vulnerable to climate change and our exposure to moderately exposed countries is captured as part of our risk management and monitoring of sovereign risk. Aviva has also no material exposure from sovereigns whose credit quality is reliant on oil and gas production.

Weather-related losses

For insurance liabilities, we recognise that weather-related events may become more frequent, severe, clustered and persistent. The speed of this change and the ability of society to adopt mitigation strategies may impact our ability to profitably provide products for our customers at affordable levels over the longer term.



We build the possibility of extreme weather events into our planning to ensure our pricing is adequate. Catastrophic event model results are supplemented by in-house disaster scenarios. We have purchased property catastrophe protection up to a 1-in-250-year return period or beyond that limits Aviva's losses depending on the territory from a relatively low retention level (£150 million on a per occurrence basis and £175 million on an annual aggregate basis) up to a 1-in-250.

Climate Value at Risk (Climate VaR)

Aviva is working collaboratively with the United Nations Environment Programme Finance Initiative (UNEP FI), industry associations, sector peers, academics, professional bodies, external consultancies, regulators and international agencies to develop tools and approaches to assess the potential business impacts of future climate-related risks and opportunities.

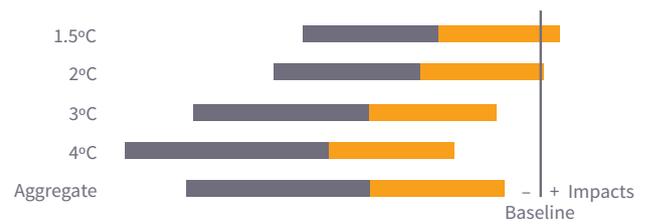
In particular, we are developing a Climate VaR measure, in conjunction with the UNEP FI investor pilot project and Carbon Delta an environmental FinTech as well as Elseware a risk management and quantification expert consultancy. This measure enables the potential business impacts of future climate-related risks and opportunities to be assessed in each of the IPCC scenarios and in aggregate. Our initial Climate VaR analysis suggests:

1. Aviva is most exposed to the 4°C scenario where physical risk dominates, negatively impacting long-term investment returns on equities, corporate bonds, real estate, real estate loans and sovereign exposures. The aggressive mitigation 1.5°C scenario is the only scenario with potential upside.

2. When aggregated together to determine an overall impact of climate-related risks and opportunities across all scenarios, the plausible range is dominated by the results of the 3°C and 4°C scenarios, reflecting that neither existing or planned policy actions are sufficiently ambitious to meet the Paris agreement goal.

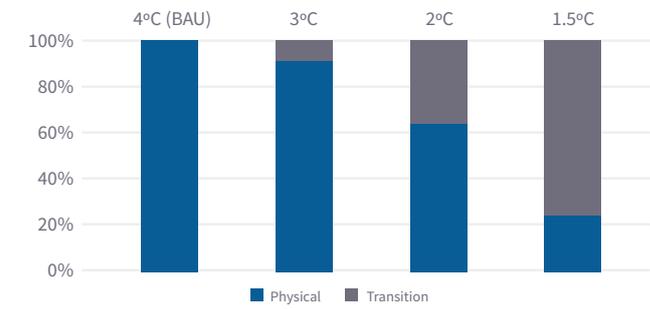
3. The 1.5°C scenario is dominated by transition risk, even after taking into account mitigating technology opportunities. In the 2°C scenario, transition and physical risks are more evenly balanced, whereas in the 3°C and 4°C scenarios physical risk dominates.

Initial Climate VaR output by scenario for Aviva's shareholder funds as at 31/12/2018. Source: Aviva.



The grey bars represent the range of outputs between the 5th Percentile and the central estimate for each scenario and the orange bars the range between the central estimate and the 95th Percentile.

Physical versus transition risks by scenario for Aviva's shareholder funds as at 31/12/2018. Source: Aviva.



The IPCC has identified four potential future scenarios with respect to climate change. Each scenario describes a potential trajectory for future levels of greenhouse gases and other air pollutants and can be mapped to potential temperature rises and levels of mitigation required: 1.5°C (emissions halved by 2050), 2°C (emissions stabilise at half today's levels by 2080), 3°C (emissions rise to 2080 then fall) and 4°C (emissions continue rising at current rates).

Transition risks and opportunities include the projected costs of policy action related to limiting greenhouse gas emissions as well as projected profits from green revenues arising from developing new technologies and patents. Physical risks cover the financial impact of climate change through extreme weather as well as the impact of rising sea levels and mean temperatures.

Aviva Stadium: Stunning Green Sports Park Completed in Dublin
 In 2016 the Aviva-sponsored stadium in Dublin switched to using electricity from renewable sources, saving nearly 3000 tonnes of CO₂ per year and becoming the first six nations stadium to do so.



For further details please see Aviva's Climate-Related Financial Disclosure 2018 at www.aviva.com/TCFD
 If you have any questions please contact crteam@aviva.com

