

CREATING MEANINGFUL CLIMATE CHANGE SCENARIOS IN A CHANGING WORLD

THE RECENT AUSTRALIAN ELECTION HIGHLIGHTS THE NEED FOR BANKS TO BE PREPARED FOR TRANSITION VOLATILITY, AND TO CONSTRUCT CLIMATE SCENARIOS ACCORDINGLY, OR RISK MISPRICING THEIR LOAN BOOK.

Climate Risk Perspectives

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Climate scenarios differ markedly from traditional banks' stress testing...

Climate scenarios are essential for banks to properly stress test the 'riskiness' of their current balance sheets, but the creation of these scenarios is far from simple. From high-level climate 'Pathways' to policy-based regional ambitions, there is a great deal to take into account in the make-up, including:

- › Global climate ambitions agreed to by governments around the world
- › Regional targets set and monitored by the same governments
- › Differential pressures on food and energy security
- › Upstream and downstream supply chain effects
- › Worsening climate outcome predictions impacting the speed of transition
- › Split of the climate investments between adaptation and mitigation

All of these need to be reflected in a rigorously designed scenario.

Global ambitions are the best starting point...

As part of its remit from the UN, The Intergovernmental Panel on Climate Change (IPCC) creates a range of Representative Concentration Pathways (RCPs). These represent routes through the century towards outcomes, expressed in terms of the final increase in average global surface temperature, relative to pre-industrial measurements. The main pathways considered are:

- › 1.9 - Endpoint – a rise of 1.5 degrees or less
- › 2.6 - Endpoint – a rise of 2 degrees or less
- › 4.5 - Endpoint – a rise of 3 to 4 degrees
- › 8.5 - No action, commonly called 'Hot House World'

It is important to appreciate that these pathways are 'real world' based and presented to the regular UN 'Conference of the Parties' (COPs), at which the assembled governments agree on global ambitions to meet, or attempt to meet, specific outcomes. The key here is that this is a collective goal.

Various attempts have been made to deconstruct the collective goal into regional sub-goals, along with allocated targets, but these have failed. The current protocol is for individual countries to then publish their own individual aims, and be responsible for monitoring and reporting progress to the following COP. The net result is that there is no direct connection between the communal goal and the sum of the underlying individual goals.

As an example of this, an analysis of the last COP in Glasgow showed:

- › The communal aim was to hold global warming to 2 degrees
- › The stretch aim was to hold global warming to 1.5 degrees
- › The analyzed end-point of existing published policies would see a rise of 2.7 to 3 degrees

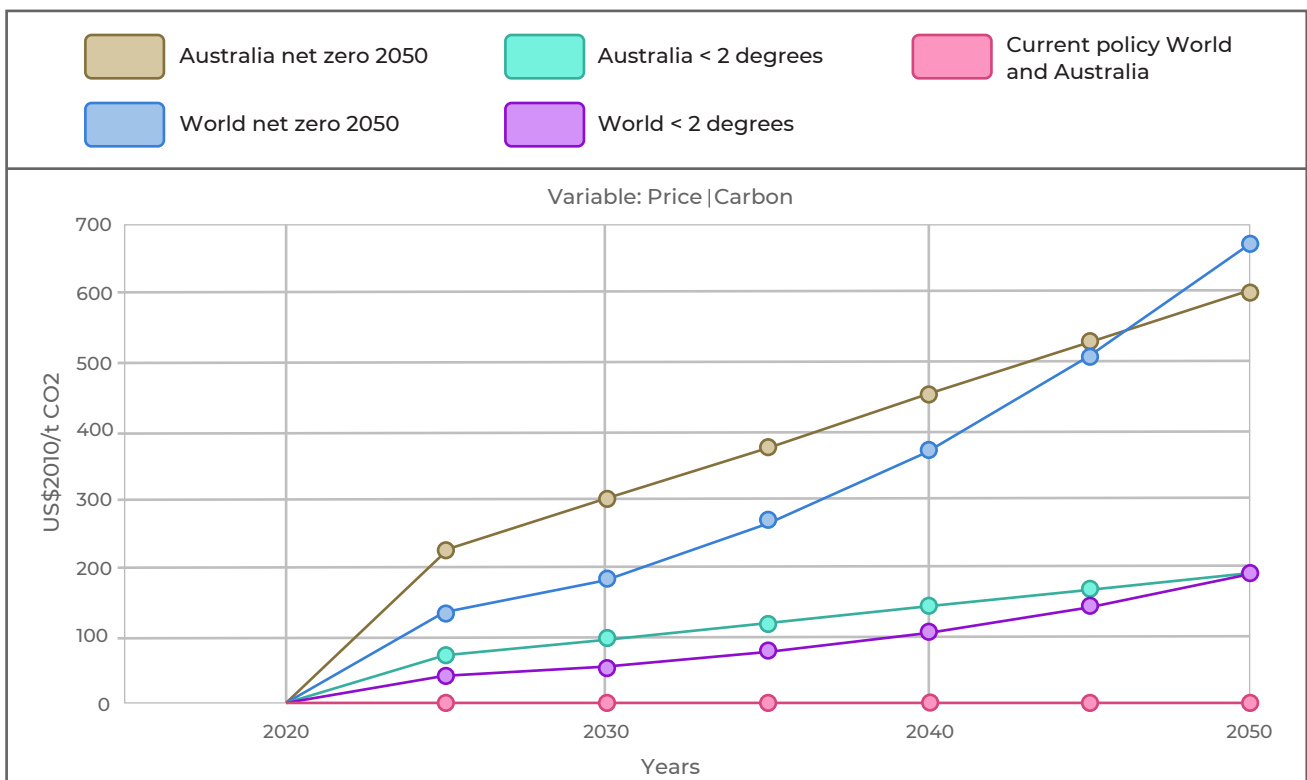
Three simultaneously held yet contradictory ambitions.

More granular analysis allows for more detailed scenarios...

With all of that said, the start point of a global scenario still has to be the IPCC. It is the most widely recognized and researched, yet is just a starting point. Other bodies, most notably the International Energy Agency (IEA) and the Network for Greening the Financial System (NGFS) provide breakdowns that are more specific to industries and can be costed out more effectively. Importantly, the NGFS also breaks down climate pathways and policy initiatives by country, including metrics such as:

- › No action by the government
- › Current policy in place
- › Stated regional policy ambitions
- › GDP impact by year through the transition
- › Commodity prices
- › Energy pricing

One of the most important techniques that the NGFS adopts, is the use of a theoretical carbon price as a proxy for the cost of pathways and scenarios that are either based on regional plans or global outcomes. This allows for standardized comparison between regional transition journeys.

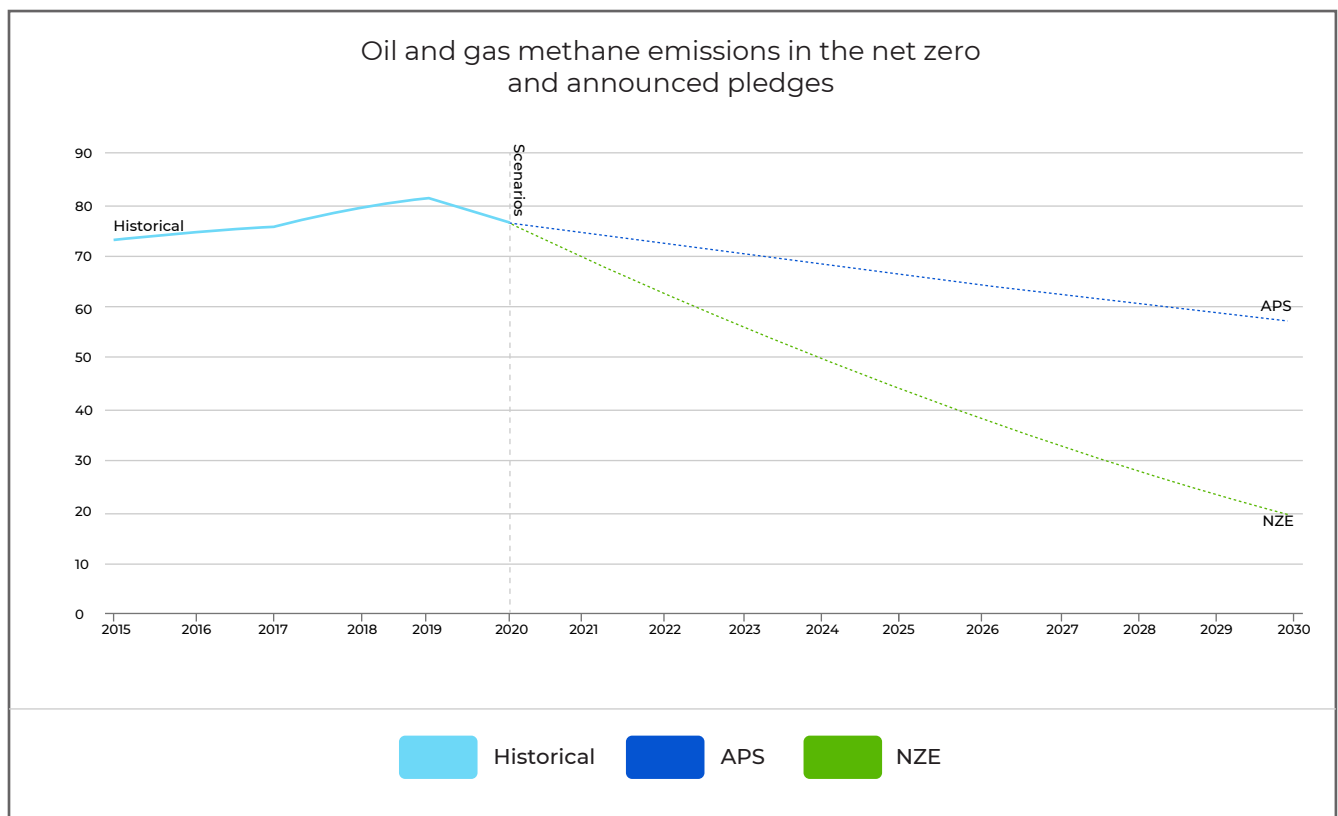


Source: NGFS

The IEA also analyzes the global economy from a 'brown to green' energy perspective. While not covering the agricultural sector, they do provide detailed progress reporting against their own 'Net Zero Emissions by 2050 Scenario' (NZE), which itself is in line with the various pathways as a necessary milestone. Sectors specifically covered by the analysis include:

- Power
- Transport
- Fuel supply
- Buildings
- Industry
- Energy Integration

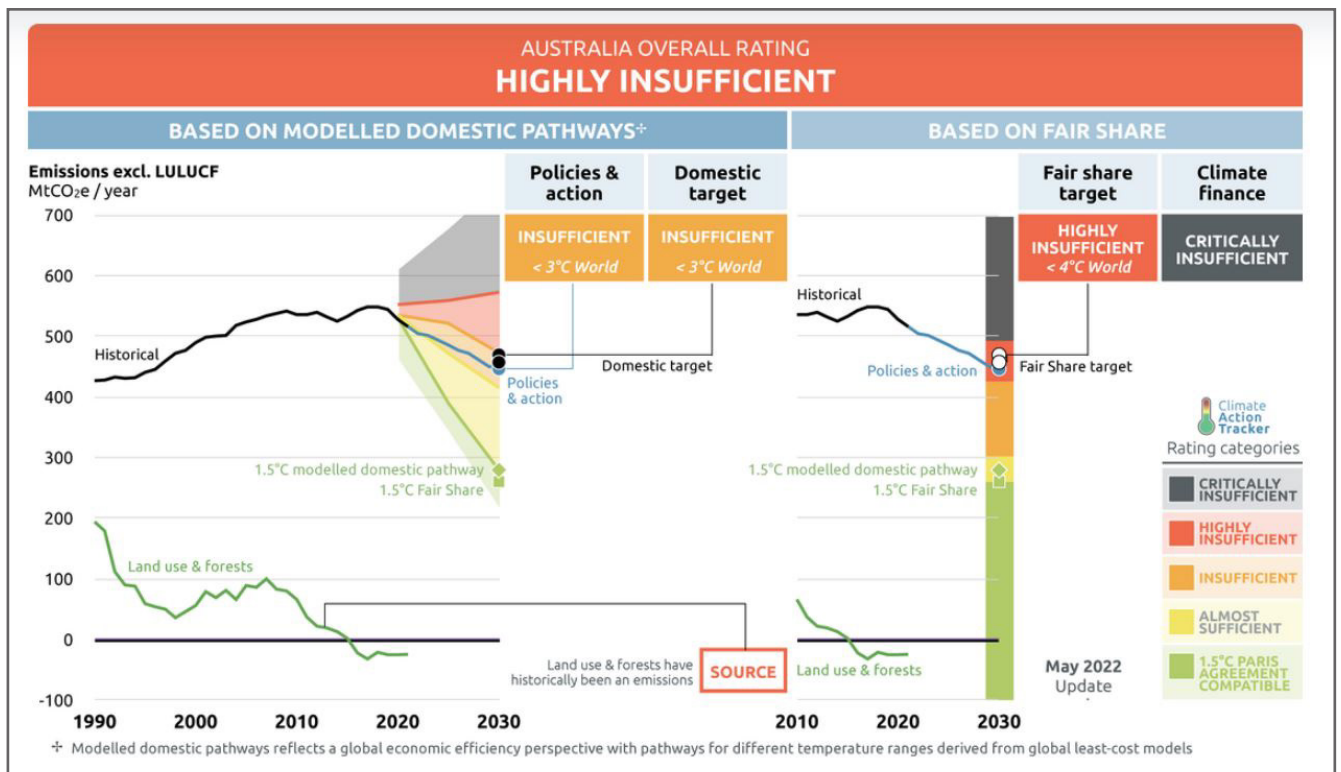
Each of these areas is further sub-divided into 46 specific analytic topics and tracked against that sector's progress towards net zero. This analysis is presented as adaptations needed, in each sector specifically, and whether or not those are being introduced at a pace that will meet the 2050 goal.



Source: IEA

The usefulness of this analysis is that it indicates not only how far the global economy is from being on track to a greener future, but how steep and disorderly the correction would need to be. This type of scenario adjustment is important for risk managers to build meaningful, defensible, economic scenarios.

Similar to the IEA, the 'Climate Action Tracker' (CAT) also breaks down current country-level pledges, measuring them against the UN agreed goals of a 2-degree limit with best efforts towards 1.5 degrees. The results are presented globally and locally by each country.



Source: Climate Action Tracker

As the IEA provides insights into the likely steepening of the transition curve, CAT allows scenario builders within banks to adjust local level speeds and urgencies.

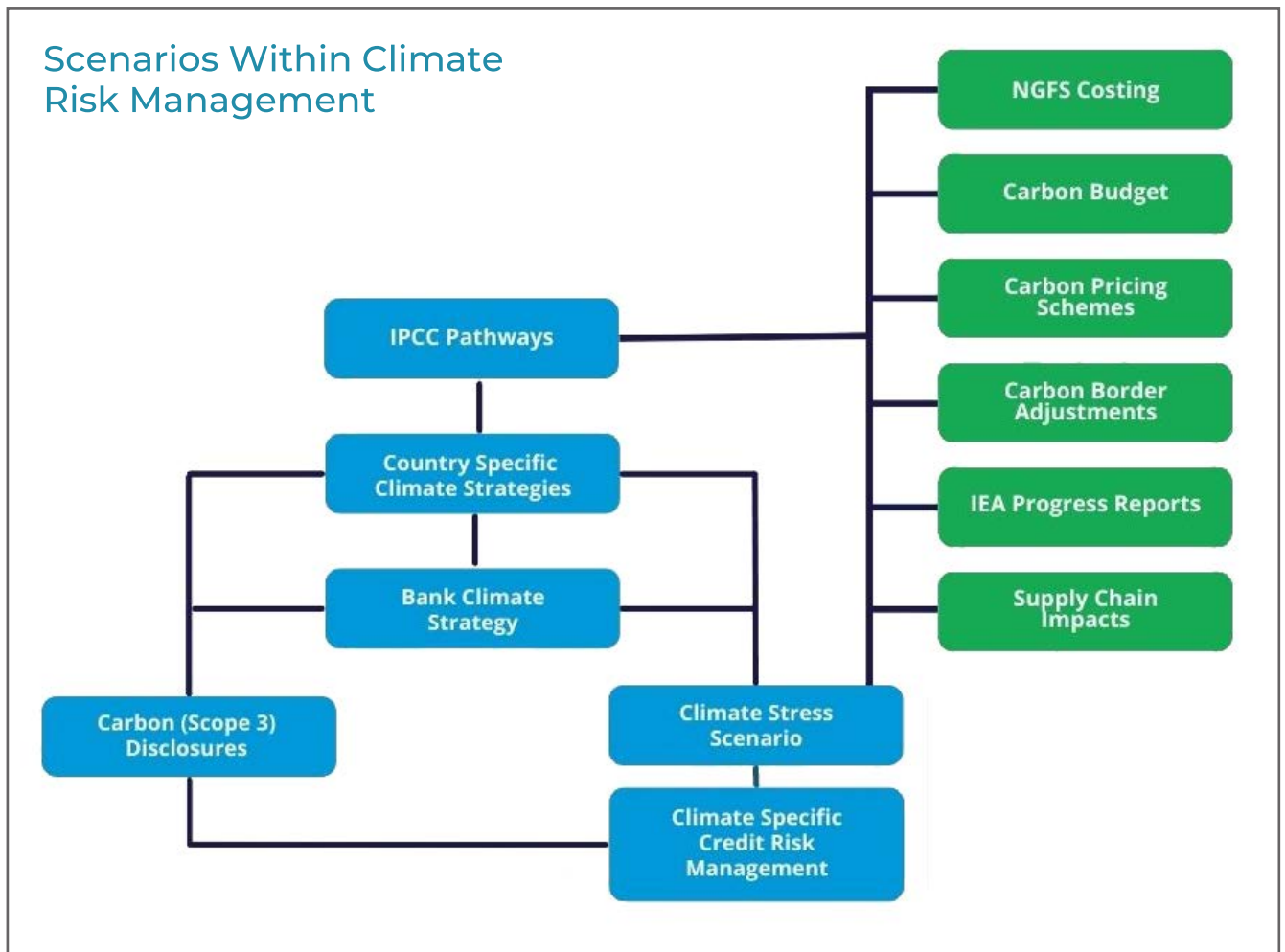
Scenarios must be a mixture of art and science...

It is clear that there is a plethora of deeply-researched data that covers pathways to various climate outcomes, from a specific industry, progress through proxy carbon pricing to estimated annual GDP impacts.

For all of this data to become truly useful to banks, economic scenarios must combine the known elements of the analysis:

- High-level commitment - Indicating the pathway being tracked against
- Local commitments - Policies that have been put in place
- Stated ambitions - Policies that have been flagged but not put in place
- Climate indicators - Global measurements of climate change that increase the pressure to go further in policy
- Global supply chain indicators – How impacts on target industries are likely to affect their specific supply chains
- Costs – Researched estimates of the costs of each pathway
- Industry-specific indicators - Global progress within specific sectors

Within the above, there are such things as carbon taxing and carbon border adjustments, both of which carry policies from one region to another, impacting firms in both.



The final scenario(s) must be a blend of overall economic impact, typically expressed through GDP changes, and speed of transition adjustments.

It is also vitally important to keep in mind that some firms within economies will take adaptive steps to protect themselves against both transitional and physical climate change. Including the potential adaptations by industry, and factoring these into the analysis at an as granular level as possible, will create a set of scenarios that can inform a bank as to the likely impact of each pathway on its underlying book.

In the case of Australia, the shape of transition curves will change markedly as a government comes into power, with sustainability as a keystone policy initiative. The case for rapid change has been made and therefore it is likely that the country moves closer towards tracking the 2-degree target. With a robust scenario framework and system in place, the effect this will have on credit profile of the bank balance sheet could be reflected, informing lending strategy, putting the bank in a strong position to take advantage of opportunities it brings, as well as protecting itself from implied increased risks.

GreenCap can help...

GreenCap is a Risk as a Service (RaaS) solution that enables banks to quantify the increased risks they will face as the global economy moves from a brown to a green basis.

Intuitive scenario building provides economic inputs to sit alongside obligor-specific adaptations, to make a rich, multi-dimensional approach to the task of building meaningful, tractable, scenarios.



GreenCap allows multiple scenarios to mirror the pathways and analysis from international bodies such as the IPCC, IEA, and NGFS. Adaptation options are built in at the loan level, to give the most accurate picture possible of the portfolio and its risk outlook.

Visit greencap.live for more insights and to discover resources that have been curated for banks to have access to the most important information they need during early days of the transition.



ABOUT GREENCAP

- › GREENCAP is a turnkey 'Risk as a Service' (RaaS) solution, designed for banks to include climate change as a category in their risk management frameworks.
- › The solution allows banks to replicate climate pathways within their scenarios for economic impact and risk analysis.
- › Using GreenCap, banks can modify pathways and scenarios to include the timing effects of delayed sustainability transition measures.
- › Loans and credit facilities are measured and monitored against risks arising from both 'physical' and 'transition' impacts.
- › GreenCap provides support for risk reporting and governance in the areas of 'Responsible Banking' and climate change.
- › With GreenCap, banks can ensure that their climate strategies are financially grounded, and loan pricing is optimized throughout the transition to a green global economy.



ABOUT GREENPOINT FINANCIAL

- › GreenPoint Financial is a division of GreenPoint Global, which provides software-enabled services, content, process and technology services, to financial institutions and related industry segments.
- › GreenPoint is partnering with Finastra across multiple technology and services platforms.
- › Founded in 2006, GreenPoint has grown to over 500 employees with a global footprint. Our production and management teams are in the US, India, and Israel with access to subject matter experts.
- › GreenPoint has a stable client base that ranges from small and medium-sized organizations to Fortune 1000 companies worldwide. We serve our clients through our deep resource pool of subject matter experts and process specialists across several domains.
- › As an ISO certified by TÜV Nord, GreenPoint rigorously complies with ISO 9001:2015, ISO 27001:2013, and ISO 27701:2019 standards.



Marcus Cree

MANAGING DIRECTOR AND
HEAD OF FINANCIAL TECHNOLOGY AND SERVICES

Marcus has spent 25 years in financial risk management, working on both the buy and sell side of the industry. He has also worked on risk management projects in over 50 countries, gaining a unique perspective on the nuances and differences across regulatory regimes around the world.

As Managing Director, Marcus co-heads GreenPoint Financial Technology and Services and has been central in the initial design of GreenPoint products in the loan book risk area, including CECL and sustainability risk. This follows his extensive experience in the Finastra Risk Practice and as US Head of Risk Solutions for FIS. Marcus has also been a prolific conference speaker and writer on risk management, principally market, credit and liquidity risk. More recently, he has written and published papers on sustainability and green finance.

Marcus graduated from Leicester University in the UK, after studying Pure Mathematics, Psychology and Astronomy. Since graduation, Marcus has continually gained risk specific qualifications including the FRM (GARP's Financial Risk Manager) and the SCR (GARP's Sustainability and Climate Risk). Marcus's latest academic initiative is creating and teaching a course on Green Finance and Risk Management at NYU Tandon School of Engineering.



Sanjay Sharma, PhD

FOUNDER AND CHAIRMAN

Sanjay provides strategic and tactical guidance to GreenPoint senior management and serves as client ombudsman. His career in the financial services industry spans three decades during which he has held investment banking and C-level risk management positions at Royal Bank of Canada (RBC) Goldman Sachs, Merrill Lynch, Citigroup, Moody's, and Natixis. Sanjay is the author of "Risk Transparency" (Risk Books, 2013), Data Privacy and GDPR Handbook (Wiley, 2019), and co-author of "The Fundamental Review of Trading Book (or FRTB) - Impact and Implementation" (Risk Books, 2018).

Sanjay was the Founding Director of the RBC/Hass Fellowship Program at the University of California at Berkeley and has served as an advisor and a member of the Board of Directors of UPS Capital (a Division of UPS). He has also served on the Global Board of Directors for Professional Risk International Association (PRMIA).

Sanjay holds a PhD in Finance and International Business from New York University and an MBA from the Wharton School of Business and has undergraduate degrees in Physics and Marine Engineering. As well as being a regular speaker at conferences, Sanjay actively teaches postgraduate level courses in business and quantitative finance at EDHEC (NICE, France), Fordham, and Columbia Universities.