Climate Change: Information paper & the case for action

April 2023

accord

hygiene, personal care & specialty products industry

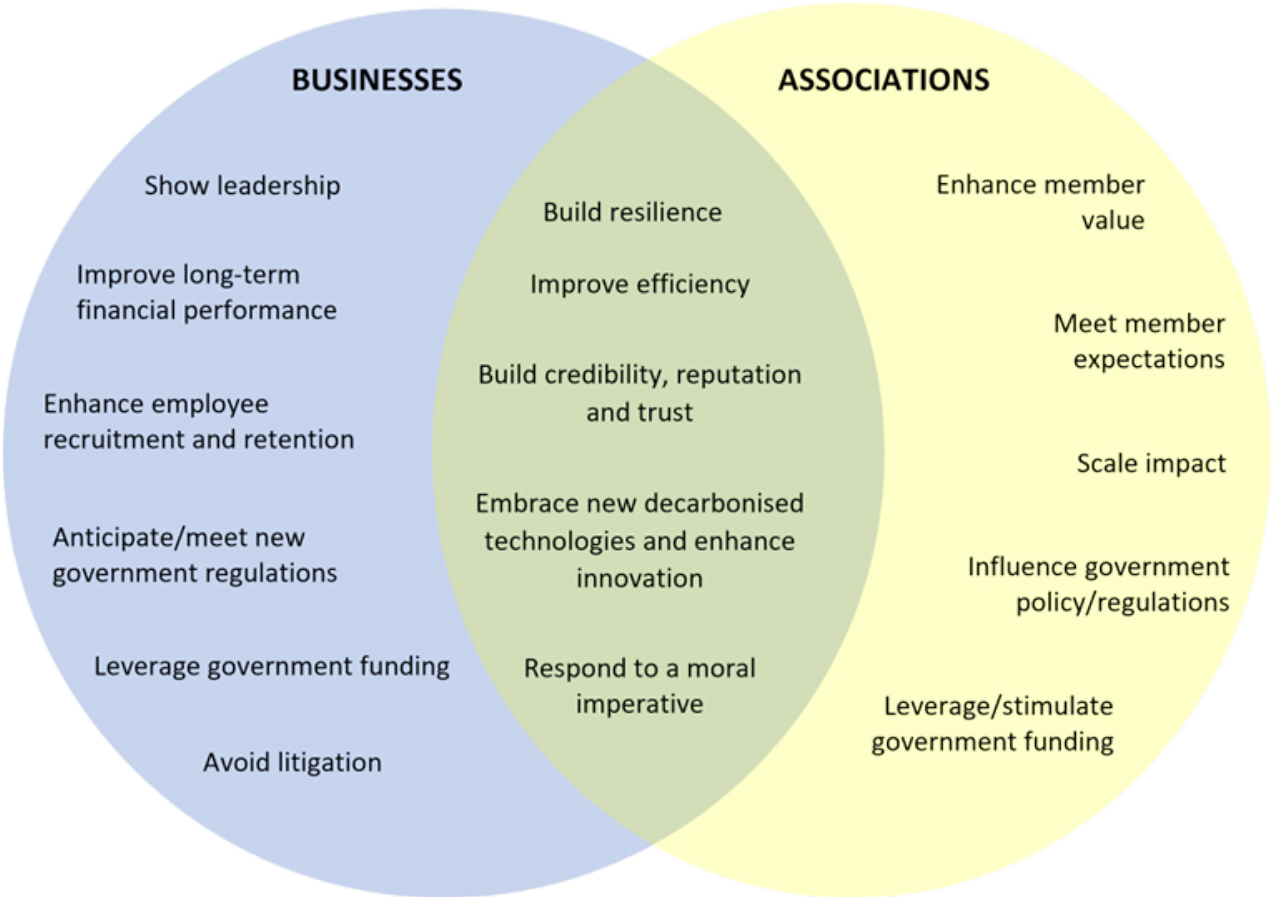
Executive Summary

Climate change has been 'in the air' for decades. Back in 1965, the US President's Science Advisory Committee raised concerns about the build-up of carbon dioxide in the atmosphere from the burning of fossil fuels. And it was at the first World Climate Conference in 1979 that the possibility of human-induced climate change was recognised on a global stage.

In the intervening 50+ years, scientific evidence has been mounting, activism has been growing and battles—political and ideological—have been waged over the issue of climate change.

Now, the issue of climate change has reached a point of mainstream acceptance and widespread policy attention. And it will only increase in prominence as pressure builds to meet ambitious climate targets.

Accordingly, this paper makes a case for action on climate change from both an association and a business perspective. A brief background on the issue is provided. Risks and opportunities are identified. The goal of this paper is to articulate a case for Accord commencing a climate-change strategy on behalf of the hygiene, personal care and specialty products industry.



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Background

What is climate change?

Climate change refers to significant, long-term and irreversible changes to global climate. Although natural processes are always influencing the Earth's climate, a range of scientific data supports that recent climate changes (since the 1800s) cannot be explained by natural causes alone. The World Economic Forum's Global Risk Report 2022 rates climate action failure and extreme weather to be among the most critical threats to the world in the next 2 to 5 years.

Evidence for anthropogenic climate change has been traced to the 1800s when human activities—including the burning of fossil fuels (coal, oil and gas), industrial processes, agriculture, land-use change and forestry—began to amplify the greenhouse effect that is vital to life on Earth. While the greenhouse effect is a natural phenomenon whereby greenhouse gases in the atmosphere reflect some of the Sun's heat energy to warm Earth's surface, it is believed that anthropogenic greenhouse gas emissions are amplifying the greenhouse effect, resulting in global warming.

While global warming refers to the increase in the average surface temperature of Earth due to increased greenhouse gas emissions, climate change encompasses global warming and other effects of increased greenhouse gases in the atmosphere.

The effects of climate change are thought to be both highly significant and serious. These would potentially include increased extreme weather events, including increased heatwaves, drought, flooding and fires; ocean warming; melting of polar ice and glaciers, increasing sea levels and decreasing freshwater; changes to seasons, etc. All of these would affect habitats and, consequently, species, populations and communities. As a result, anthropogenic climate change is listed as a 'key threatening process' on Schedule 3 of the Threatened Species Conservation Act 1995.

Overwhelming scientific evidence for climate change as a result of human activity led to the Paris Agreement.

What is the Paris Agreement?

The Paris Agreement is a legally binding international treaty on climate change. It was adopted by 196 Parties at the United Nations (UN) Climate Change Conference in Paris on 12 December 2015 and entered into force on 4 November 2016.

Its goal is to limit global warming to an increase of no more than 2 °C (and preferably 1.5 °C) from preindustrial temperatures. It is not prescriptive on how this is achieved. The global temperature is already over 1 °C above pre-industrial levels and scientific assessments have shown that limiting warming to 1.5 °C requires

achieving at least net zero global carbon dioxide (CO_2) emissions in the early 2050s.

The Paris Agreement operates on a 5-year cycle of increasingly ambitious actions by Parties, set in the context of sustainable development and efforts to eradicate poverty. In 2020, Parties were required to report on the actions they would take—'nationally determined contributions' (NDCs)—to reduce their greenhouse gas emissions. The next NDCs are due in 2025.

Australia signed the Paris Agreement and, under Morrison's Liberal/National government at that time, committed to an emissions reduction target of 26–28% compared to 2005 levels by 2030. With the change in 2022 to Albanese's Labor Government, the more ambitious emissions reduction target of 43% was set [see Federal policy, page 5]. At the state and territory level, all have set net-zero targets by 2050 or earlier [see State, territory & local government policy, page 6].

What happened at COP27?

COP27 was the 2022 UN Climate Change Conference, held in November in Sharm El-Sheikh, Egypt. The COP is held annually to demonstrate the importance of global coordination in managing climate change and to discuss specific priorities. Some of the key outcomes were:

- Creation of a new global 'loss and damage' fund, to assist developing countries that are vulnerable to the effects of climate change. The framework will be developed by COP28 and contributors and recipients will be determined then.
- Launch of the Sharm El-Sheikh Adaptation Agenda. In response to extreme climatic events (e.g., floods), it is designed to rally global support around 30 actions needed to achieve a resilient world by 2030.
- Recognition of the link between climate change and biodiversity (50% of global GDP depends directly on the 'services' provided by nature).
- No consensus on phasing down fossil fuels (amidst the fuel crisis).

These outcomes suggest that adaptation could play a bigger role than mitigation in the short term.

The Australian context

Federal policy

There was a considerable increase in focus on climate change policy upon the election of the Albanese Labor Government in 2022.

Within the first sitting of parliament following the federal election, the new government released its new climate change legislation, the Climate Change Bill 2022 and associated Climate Change (Consequential Amendments) Bill 2022. Both were assented into law in September 2022.

The headline figures of the Climate Change Act 2022 are:

- an emissions reduction target of 43% below 2005 levels by 2030. (This puts Australia on track for the 2 °C Paris Climate Goal, not the more ambitious 1.5 °C, which is more than proposed under the Liberal/ National government but not as ambitious as some other countries.)
- reducing Australia's net greenhouse gas emissions to zero by 2050.

Additionally, the Act requires the minister to prepare/ table an annual climate change statement[1], the Climate Change Authority to give the minister advice in relation to the annual statement and future greenhouse gas emissions reduction targets, and provides for periodic reviews of the operation of the Act.

The federal government has also expressed a commitment to working with other Pacific nations on the region's priorities.

Federal policy overview

Federal policy measures focus on the following areas:

Electricity

- 'Rewiring the nation': $20 billion to upgrade the electricity grid[2]
- Solar banks: Co-invest $100 million for 85 solar banks across the country
- Shared household electricity storage: invest $200 million to install 400 community batteries
- Net zero Australian Public Service: by 2030

Industry, carbon farming and agriculture

- Safeguard Mechanism: reduce emission baselines gradually
- 'Powering the Regions Fund': support innovation by existing/new industries in regional areas
- (From National Reconstruction Fund): support

1. From the Climate Change Act 2022, the Annual Statement must cover:
(a) progress made during the year towards achieving Australia's greenhouse gas emissions reduction targets; and
(b) international developments during the year that are relevant to addressing climate change; and
(c) climate change policy; and
(d) the effectiveness of the Commonwealth's policies in contributing to the achievement of Australia's greenhouse gas emissions reduction targets and reducing emissions in the sectors covered by those policies; and
(e) the impact of the Commonwealth's climate change policies to achieve Australia's greenhouse gas emissions reduction targets on rural and regional Australia, including the social, employment and economic benefits being delivered by those policies in rural and regional Australia; and
(f) risks to Australia from climate change impacts, such as those relating to Australia's environment, biodiversity, health, infrastructure, agriculture, investment, economy or national security.
2. So it can handle more renewable power and the different geographical distribution of renewable energy generation compared to traditional fossil fuel–burning plants

renewables manufacturing and the deployment of low-emissions technologies (up to $3 billion)
- Support development and commercialisation of emissions-reducing livestock feed and improved carbon farming opportunities
- Energy Skills Program: train 10,000 new energy apprentices for jobs of the future ($10 million)

Transport

- Electric car discount
- Real-world vehicle testing program: improve the accuracy of advertised vehicle fuel efficiency ($14 million)
- Develop National Electric Vehicle Strategy

Leadership

- Restore the role of the Climate Change Authority [see section below]
- New annual climate change report to Parliament
- Bid to co-host COP31 in Australia with Pacific countries
- Reinstate Climate Change Ambassador position [see section below]
- Greater transparency and accountability for large businesses regarding their climate-related plans, risks and opportunities
- Urgent climate risk assessment led by the Director General of National Intelligence and the Secretary of Defence

More details are in the 2021 Powering Australia[3] plan.

Capacity Investment Scheme

On 8 December 2022, the 'Capacity Investment Scheme' was announced and will commence in the second half of 2023. This is a revenue underwriting mechanism providing $10 billion of government funding to cover the costs of renewable energy providers when their revenue falls below an agreed value. (A share of profits will be returned to government when generators exceed agreed revenue ceilings.) The goal is to ensure a reliable supply of renewable energy. Open tenders will determine the projects that will come under the Scheme.

Key organisations/individuals

Australian Renewable Energy Agency (ARENA): established by the Australian Government on 1 July 2012, its purpose is to support the global transition to net zero emissions by investing in projects to support the next generation of renewable energy and low-emission technologies and sharing knowledge from experts in energy technology.

Clean Energy Finance Organisation (CEFC): established on 1 August 2012, CEFC is a corporate Commonwealth entity that invests on behalf of the Australian Government in renewable and low carbon technologies where market gaps are identified, to accelerate Australia's transition to net zero emissions. CEFC invests per its legislation, the Clean Energy Finance Corporation Act 2012 (CEFC Act), which was amended in September 2022 to reflect the emissions reduction targets brought in under The Climate Change Bill 2022.

Climate Change Authority: an independent statutory body established under the Climate Change Authority Act 2011 to provide expert advice to the Australian Government on climate change. It conducts regular/specifically commissioned reviews and undertakes targeted climate change research. The Authority also provides independent advice on the preparation of the Annual Climate Change Statement to Parliament, greenhouse gas emissions reduction targets, the Carbon Farming Initiative (Emissions Reduction Fund), the National Greenhouse and Energy Reporting System (including the Safeguard Mechanism), etc.

Department of Climate Change, Energy, the Environment and Water: the federal department within which the climate change portfolio sits.

Minister for Climate Change and Energy: Currently the Hon Chris Bowen MP.

Shadow Minister for Climate Change and Energy: Currently the Hon Ted O'Brien MP.

Assistant Minister for Climate Change and Energy: Senator the Hon Jenny McAllister

Ambassador for Climate Change: Kristin Tilley, within the Department of Foreign Affairs and Trade, leads Australia's international climate engagement.

State, territory & local government policy

The previous national governments over the past decade have been accused of inaction on climate change.

During this period, state and territory governments and some local governments have adopted their own targets. State and territory commitments are summarised in the table on page 7.[4]

At the local government level, 21% of the 537 Australian local governments have made ambitious commitments, including 17% that have committed to net zero emissions before 2050. This number will only increase in the future.

3. https://www.alp.org.au/policies/powering-australia
4. https://100percentrenewables.com.au/net-zero-leaderboard-states-local-governments-communities-dec-2021/

STATE / TERRITORY	RENEWABLE ENERGY COMMITMENT	CARBON COMMITMENT
ACT	• 100% renewable electricity by 2020 (Target achieved in October 2019)	• 40% reduction in greenhouse gas emissions on 1990 levels by 2020 • Net zero emissions by 2045
NSW	• 20% from renewable energy in line with the RET	• 50% reduction in greenhouse gas emissions on 2005 levels by 2030 • Net zero emissions by 2050
NT	• 50% renewable energy by 2030	• Net zero emissions by 2050
QLD	• 50% renewable energy by 2030	• Net zero emissions by 2050 • 30% emissions reduction below 2005 levels by 2030
SA	• 50% renewable energy production by 2025 (Target achieved in 2018).	• Net zero emissions by 2050 • Reduce greenhouse gas emissions by at least 50 per cent by 2030
TAS	• 100% renewable energy by 2022 • 200% renewable energy by 2040	• Net zero emissions by 2050
VIC	• 25% renewable energy by 2020 • 40% renewable energy by 2025 • 50% renewable energy by 2030	• Net zero emissions by 2050 • Reduce greenhouse gas emissions from 2005 levels by 28-33% by 2025 and 45-50% by 2030
WA	• No target	• Net zero emissions by 2050

What other associations are doing

Accord has undertaken a scoping exercise to consider what other associations are doing, locally and globally, in relation to climate change. The scoping results will help inform the development of a potential climate change strategy for Accord, because there is nothing to be gained from reinventing what already exists if it is fit for purpose and can be readily adapted.

Climate change initiatives being progressed by three key overseas associations on behalf of their members are summarised below:

- Cosmetics Europe's Commit for our planet initiative was launched in December 2022. It is an industry-wide initiative that aims to reduce the cosmetics sector's environmental footprint in Europe and across the value chain. There are three focus areas: climate, nature and packaging.
- The American Cleaning Institute's (ACI's) 1.5 °C Climate Challenge is for companies in the cleaning products industry and supporting supply chain to align their corporate climate strategy with net zero emissions by 2050. ACI has developed a new roadmap for action to support this and showcases the 15 ACI members that have joined the challenge. Also, ACI's Corporate Compass, a tool by which their members can self-assess their performance, includes 'Reduce Emissions' as one of its four pillars and provides steps that their members can take towards this goal.
- The Charter for Sustainable Cleaning, launched by the International Association of the Soap, Detergent and Maintenance Products Industries (AISE) in 2006, is a voluntary lifecycle-based, third-party assessed framework that promotes a common industry approach to sustainability practice and reporting. Via the Charter, AISE tracks various metrics, including on energy and emissions.

Some association initiatives have positive climate change impacts although this is not their primary goal, such as initiatives that focus on resource circularity or user behaviour. And some associations are active in the policy space and/or have position statements on behalf of their industry. Many associations have not yet implemented specific initiatives relating to climate change.

In Australia, there do not appear to be any associations representing related industries that have implemented specific member-focused climate change initiatives. However, the ClimateWise Associations program

provides free resources aimed at helping associations across Australia become more active in planning for the impacts of climate change and supporting their members.

The case for climate action

Based on the weight of scientific evidence, human-induced climate change is occurring and requires immediate action to minimise future impacts.

And, whereas in past decades the voice of climate change denial has been prominent (see Appendix 2), this voice appears to be diminishing. An article[5] published by the World Economic Forum identified 23% fewer 'climate deniers' in the US Congress compared to six years ago and summarised the changing trends in the UK, EU and Australia:

> *'An analysis of "right-leaning" UK newspaper editorials found that the percentage naysaying climate action dwindled during the past decade, as the number advocating for more action swelled. In the EU, climate change only ranked third among the most serious perceived problems in a 2009 poll, but advanced to first last year. And voters in every federal seat in Australia now support increased action on climate change, according to survey results published last year.'*

Thus, there has been increased momentum on acting on climate change in recent years. There is global attention on the issue and many governments, including Australia's (see The Australian context, page 5), are implementing targets and policies to mitigate and adapt to the effects of climate change. Companies will face the effects of climate change, whether in the form of physical impacts, regulations, market changes and/or public pressure/ customer expectations.

Consequently, it is anticipated that there will be increasing disclosure requirements imposed on businesses relating to climate change. For example, the International Sustainability Standards Board (ISSB) has developed IFRS S2 Climate-related Disclosures (Climate Exposure Draft). This draft proposes that companies be required to disclose information that would enable an investor to assess the effect of climate-related risks and opportunities on its enterprise value.

Additionally, company directors may be held personally liable for their company's actions concerning climate change. A ground-breaking 2016 legal opinion[6] commissioned by the Centre for Policy Development and the Future Business Council found that, under their duty of care and diligence obligations imposed by the Corporations Act 2001, Australian company directors '*… who fail to consider climate change risks now could be found liable for breaching their duty of care and diligence in the future*'. This opinion also included that climate change risks '*are capable of representing risks of harm to the interests of Australian companies, which would be regarded by a Court as being foreseeable at the present time*'. This opinion was updated in 2019 to state that *'the exposure of individual directors to "climate change litigation" is increasing, probably exponentially, with time.'*[7]

> '...voters in every federal seat in Australia now support increased action on climate change'

Climate change risks and opportunities

Climate change risks

Climate change–related risks can be divided into two major categories[8]:

1. Risks related to the **transition to a lower-carbon economy**, including as a result of policy, technology and market changes to facilitate climate change mitigation and adaptation. These may pose financial, operational, legal and/or reputational risks to businesses.

Examples of policy actions include carbon-pricing mechanisms to reduce greenhouse gas emissions and policies to promote a shift to lower-emission energy sources, the adoption of energy- and water-efficiency measures and more sustainable land-use practices. These could affect a business directly or its supply chains and customers.

Technological developments include those relating to renewable energy, battery storage, energy efficiency, and carbon capture and storage. These could affect the competitiveness of organisations as well as their production and distribution costs.

5. www.weforum.org/agenda/2022/08/is-climate-denialism-dead/
6. The Centre for Policy Development and The Future Business Council, "Climate Change and Directors' Duties" Memorandum of Opinion, October 2016, Mr Noel Hutley SC and Mr Sebastian Hartford Davis. https://cpd.org.au/wp-content/uploads/2016/10/Legal-Opinion-on-Climate-Change-and-Directors-Duties.pdf
7. The Centre for Policy Development "Climate Change and Directors' Duties" Supplementary Memorandum of Opinion, 26 March 2019, Mr Noel Hutley SC and Mr Sebastian Hartford Davis. https://cpd.org.au/wp-content/uploads/2019/03/Noel-Hutley-SC-and-Sebastian-Hartford-Davis-Opinion-2019-and-2016_pdf.pdf
8. Task Force on Climate-related Financial Disclosures, June 2017, "Recommendations of the Task Force on Climate-Related Financial Disclosures, Final Report". https://www.fsb-tcfd.org/wp-content/uploads/ 2017/06/FINAL-TCFD-Report-062817.pdf

Market changes encompass the shifts in the supply and demand for commodities, products and services as climate change risks and opportunities are increasingly considered.

2. Risks related to the ***physical impacts of climate change***, which can be event-driven (for example, by extreme weather events) or longer-term due to changing climatic patterns or rising sea levels. Both may have financial implications, including through direct damage to assets and impacts on employees, increased insurance costs, as well as through supply chain disruption and changes in water/materials availability and quality.

Thus, there is a strong case for acting on climate change to minimise these risks, both for individual companies and business associations.

Climate change opportunities

The low-carbon transition also creates opportunities for all sectors. Businesses and associations have opportunities to increase efficiency, innovation and growth on the path to a zero-emissions economy.

For example, businesses that work to reduce emissions within their operations and supply chains can save energy and materials costs, enhance their reputation and resilience, and potentially attract top talent and investment. Associations can attract members, position their industry as a solutions provider with policymakers and drive change within their sector.

The business case for action

The business case for businesses

The private sector, collectively, is responsible for a significant portion of global GHG emissions. As such, it has a crucial role to play in reducing emissions and transitioning to a low-carbon economy. Many businesses have already committed to ambitious emissions reduction targets and are investing in renewable energy, energy efficiency and other sustainable practices.

- ***Building resilience.*** Acting on climate change will help businesses remain profitable and competitive as climate risks increase. This would include developing approaches to assess and adapt to minimise the disruption/cost of the acute and long-term physical impacts of climate change on the business as well as minimise risks relating to the transition to a low-carbon economy.
- ***Improving long-term financial performance.*** The transformation of business operations to a more efficient, low-carbon business model can save costs, open market opportunities and potentially attract investment. For example, the calculation of its carbon footprint can offer valuable insights into where a business spends resources (money and energy) in its operations and, therefore, opportunities for greater efficiencies.
- ***Enhancing innovation/embracing new decarbonised technologies.*** Emerging technologies and a global shift to a low-carbon economy offer opportunities for businesses to innovate in their own operations and product and service offerings. There will likely be an increasing market for companies and products with improved carbon/emissions profiles.
- ***Building credibility, reputation and trust, enhancing the customer/investor value proposition.*** Increasingly, customers and investors will seek out companies that have an improved climate change profile. Businesses that act on climate change will strengthen their reputation with

customers and investors, who will increasingly scrutinise and demand climate action. Moving early will also enable businesses to position themselves as responsible leaders on climate change.

- ***Anticipating/meeting new government regulations.*** Businesses that act on climate change sooner rather than later will be ahead in terms of the practices and policies they may be required to adopt at some point. In Australia, emissions reduction targets are in place with a net-zero goal of 2050; businesses in all sectors, not just high-polluting industries, will need to show that they are effectively working towards these. The federal government has flagged that large businesses will be subject to greater requirements relating to transparency and accountability regarding their climate-related plans, risks and opportunities.
- ***Showing leadership.*** Businesses that implement cutting-edge climate change practices, programs and solutions are seen as leaders in their industry/sector. As well as the reputational benefits of this, it can also drive change within the sector.
- ***Enhancing employee recruitment and retention.*** Businesses with climate change programs can potentially attract talented employees who want to work in organisations that are engaged and have a positive impact on this issue.
- ***Leveraging government funding.*** Australian governments are offering incentives, funding and programs to support businesses to reduce emissions, improve energy efficiency and adapt to climate change. Businesses may be able to leverage funding opportunities as they become available.
- ***Avoiding litigation.*** Failing to act on climate change risks may put company directors at risk of legal action for breaching their obligations of duty and diligence under The Corporations Act 2001.
- ***Responding to a moral imperative.*** Based on the social and environmental impacts of climate change, taking action is 'the right thing to do' as a responsible corporate citizen.

Businesses that reduce emissions within their operations and supply chains can save energy and materials costs, enhance their reputation and resilience, and potentially attract top talent and investment

The business case for associations

Associations have a key role in amplifying action on climate change. Associations may be especially important in mobilising smaller companies that may have fewer resources to dedicate to sustainability issues in general. Associations also have an important role in advocating to governments for business needs that require consideration in a just transition as well as in communicating the benefits provided by the industry and raising awareness of progress made by the sector concerning climate change.

Activities that associations may undertake could include: providing information, offering leadership, building a community of practice, developing tools and resources, developing industry standards, collating data/benchmarking and industry-wide reporting.

- ***Scaling impact.*** One of the main reasons for associations to act on climate change is their potential to assist multiple businesses simultaneously, with industry-specific information, resources etc. There are efficiencies in associations delivering industry-wide support so that individual companies do not have to 'reinvent the wheel', especially for SMEs, which typically have fewer resources than larger companies.
- ***Improving efficiency.*** As for individual businesses, the calculation of its own carbon footprint can provide insights into where an association spends resources and inform the transformation to a more efficient, low-carbon business model that saves costs and shows leadership for the sector.
- ***Building resilience.*** Acting on climate change will help associations remain financially strong and competitive in the transition to a low-carbon economy and as climate risks increase. By assisting members in adopting best climate practices and enhancing the resilience of their supply chains, associations also assist their members in remaining profitable and competitive in the face of increasing climate change impacts, thereby preserving their member base.
- ***Influencing/anticipating new government policy/regulations.*** Associations that are informed on climate change can engage more effectively on government policy and regulatory proposals on behalf of industry, where needed. And associations that show leadership by proactively promoting climate change best practices within their membership have a better chance of influencing government climate policy and regulations, forestalling rigid or reactive regulation that could reduce business innovation and investment. Climate leadership also helps associations build currency with government, positioning them as a policy solutions partner. When associations help drive policy, member businesses will be able to plan more effectively.

- ***Stimulating/leveraging government funding.*** Australian governments are offering incentives, funding and programs to support businesses to reduce emissions, improve energy efficiency and adapt to climate change. By being informed and active on climate change, associations may be able to stimulate and/or leverage funding opportunities as they become available or point businesses to sources of funds.
- ***Building credibility, reputation and trust.*** Associations that act on climate change will strengthen their industry's performance and credibility with stakeholders, helping them to remain relevant and respected while enhancing the sector's license to operate. They will also demonstrate relevance and deliver value for current and prospective members by being actively engaged on this pressing issue, as well as build positive stakeholder relationships with governments, NGOs and other stakeholders.
- ***Enhancing innovation/embracing new decarbonised technologies.*** Associations can spur member innovation by assisting them, particularly SMEs, to transition to efficient and low-carbon business models, technologies and professional practices.
- ***Meeting member expectations/enhancing member value.*** With the increasing focus on climate change at all levels of society, businesses will increasingly look to associations for leadership, information, tools and support on this issue. It may be that, under increasing financial pressures, businesses will increasingly consider this to be an essential component of the association's value proposition and weigh their membership options accordingly.

  Associations that are active on climate change can increase their value and relevance for current and prospective members. And associations that position members for a low-carbon future will help members remain profitable and competitive as society transitions into a low-carbon economy and climate risks increase, which ultimately promotes the resilience of the association.
- ***Respond to a moral imperative.*** As for businesses, associations can take action on climate change in recognition that it is 'the right thing to do' as a responsible industry body.

Associations that are active on climate change can increase their value and relevance for current and prospective members

Conclusion

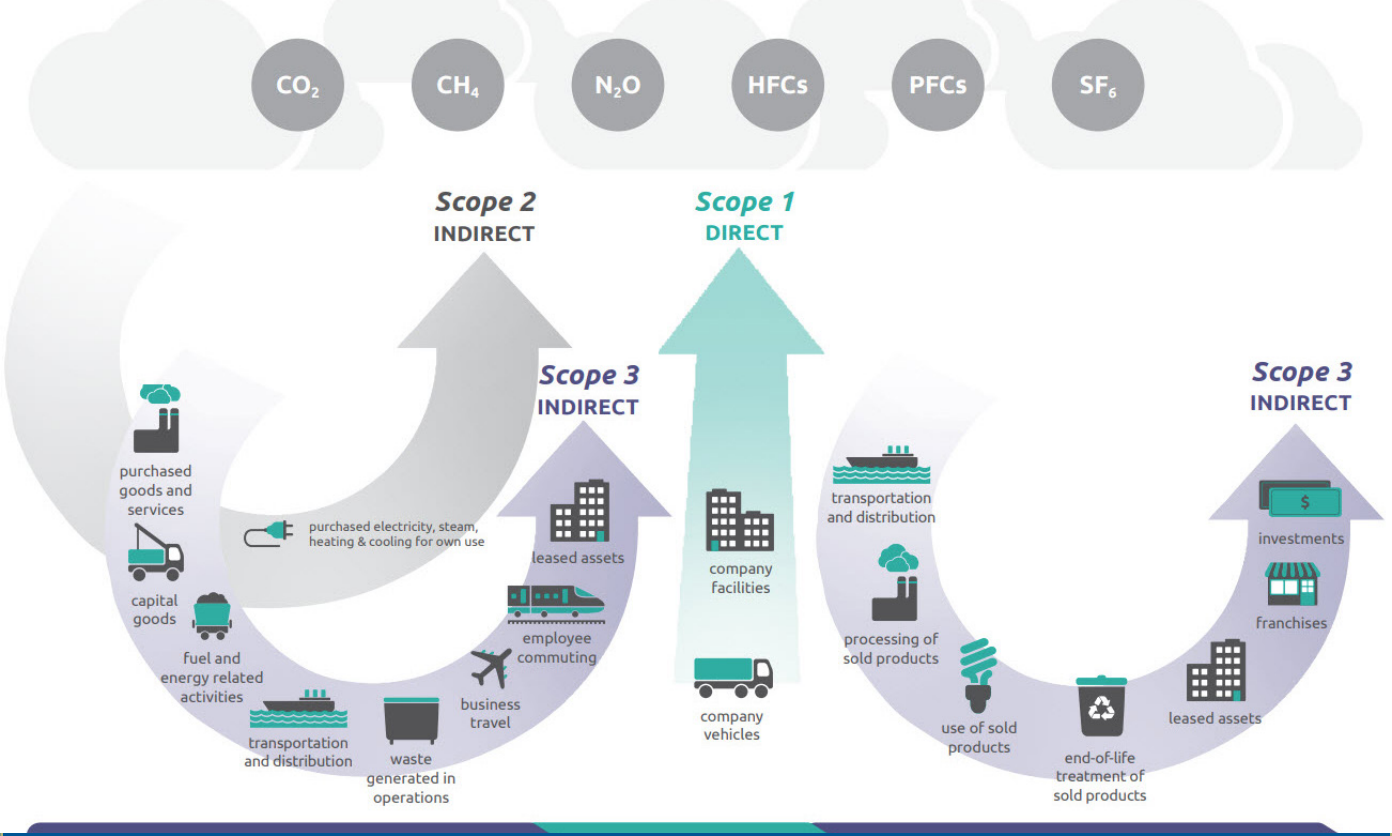
The case for action on climate change is clear. Businesses and associations have a role to play, both to help meet ambitious climate targets—thereby minimising the impacts of climate change—whilst also ensuring that they remain viable in a changing world and low-carbon future.

Accord will be developing a climate-change strategy for the hygiene, personal care and specialty products industry. Feedback/assistance from all members will be critical in shaping this and delivering what will be most helpful and effective for our sector.

APPENDIX 1: Key terms and definitions

Absolute zero:	The state where an entity eliminates all greenhouse gas emissions (i.e., no carbon offsets are required).
Adaptation:	Anticipating, preparing for the effects of and taking action to minimise the negative impacts of climate change.
Black carbon:	A component of fine particulate air pollution (PM2.5) that contributes to climate change. It forms by the incomplete combustion of fossil fuels, wood etc.
Carbon neutral:	The state where an entity (organisation/individual) reduces/offsets all its carbon emissions (CO_2). This is also termed 'net-zero carbon emissions'.
Carbon credit:	For each tonne of CO_2 emissions reduced or removed from the atmosphere, one carbon credit is created.
Carbon dioxide equivalent (CO2e):	The number of metric tons of CO_2 emissions with the same global warming potential as one metric ton of another greenhouse gas (calculation is defined in 40 CFR Part 98).
Carbon footprint:	The total amount of greenhouse gas emissions by an entity, including from Scope 1, 2 and 3 sources, each year. For a business, this includes all activities that are involved in producing its goods or services and their use. The total carbon footprint could include emissions associated with the sourcing of raw materials, production, distribution, use and end-of-lifecycle treatment (including recycling).
Carbon negative:	A process or activity that absorbs more CO_2 than it emits, removing additional carbon dioxide from the atmosphere and countering greenhouse emissions.
Carbon offsets:	Carbon offsets are reductions in greenhouse gas emissions that are used to compensate for greenhouse gas emissions that are occurring elsewhere. This is achieved by an entity investing in/developing projects that reduce, remove or capture emissions from the atmosphere such as reforestation, renewable energy or energy efficiency. The carbon offsets would compensate for some of the entity's emissions. There has been criticism of the rapidly expanding carbon offsets industry, in part for distracting from the real priority of cutting carbon emissions (as offsets do not directly reduce an entity's carbon footprint) and because offsets can only remove a fraction of all CO_2 emissions.
Climate justice:	When action against climate change is framed in the context of the social impacts of climate change, including on the health, safety, and well-being of people and communities worldwide, especially vulnerable communities. (see also 'Just transition')
Climate positive:	The state where an entity goes beyond net-zero carbon emissions to remove additional carbon from the atmosphere, thereby creating an environmental benefit. (This is also termed 'carbon negative'.)
Climate neutral:	The state where an entity (organisation/individual) reduces/offsets all greenhouse gas emissions and eliminates all other negative environmental impacts.
Carbon sink:	Any reservoir, natural or otherwise, that accumulates and stores CO_2 (absorbs more than it produces) and thereby lowers the concentration in the atmosphere. Examples include photosynthesis by plants, phytoplankton and algae, dissolution in the ocean and trapping in soil/peat.
Decarbonise:	Reduce or eliminate greenhouse gas emissions.

Embodied carbon (embedded carbon):	The sum of greenhouse gas emissions released during the manufacture and disposal of a product, including raw material extraction, processing and transport, product manufacturing and transport and end of life.
Emissions:	Scope 1: Also called 'direct emissions', these greenhouse gas emissions are from sources that are owned or controlled by the entity. For example, from the combustion of fuel in company-owned vehicles, boilers, furnaces and incinerators, and in the process of manufacturing/processing some materials and chemicals. Scope 2: Also called 'indirect emissions', these greenhouse gas emissions are released into the atmosphere from the use of purchased energy that is used by the entity. That is, the actual emissions are generated elsewhere, such as at a power station, but the energy is used by the entity e.g., for electricity, steam, heating/ cooling. Scope 3: Also 'indirect emissions', these greenhouse gas emissions are released into the atmosphere from the use of purchased energy throughout the value chain and by employees. This can include business travel in non-company vehicles, employee commuting, the extraction and production of purchased materials, the transportation and use of products, and the transport and disposal of waste.



Source: GHG Protocol, Corporate Value Chain (Scope 3) Accounting and Reporting Standard

Greenhouse effect:	In the context of Earth, the greenhouse effect is a process by which gases in the Earth's atmosphere trap heat from the Sun.

Greenhouse gas:	Any gas that traps heat in the atmosphere by absorbing infrared radiation that leaves Earth's surface. There are seven greenhouse gases included in the Greenhouse Gas Protocol: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N2O) and fluorinated gases hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6) and nitrogen trifluoride (NF_3).
Global warming potential (GWP):	Different greenhouse gases remain in the atmosphere for different durations and absorb different amounts of heat. The GWP is a relative index of the amount of warming a gas causes over a given period (normally 100 years). CO_2 is assigned a value of 1, with the GWP for all other greenhouse gases being the number of times more warming they cause compared to CO_2.
Global warming:	An increase in the average temperature of Earth's surface.
Just transition:	Ensuring no one is left behind in the transition to a low-carbon economy and in adapting to the impacts of climate change, both for most economically and socially affected regions, businesses and individuals (e.g., fossil fuel–dependent communities and workers).
Low-carbon economy:	An economy that is based on low-carbon energy sources and so has minimal carbon dioxide emissions. Examples of low-carbon energy sources are wind, solar, geothermal, hydro and nuclear power. Zero-carbon fuels include hydrogen (H_2) and ammonia (NH_3).
Mitigation:	Reducing the severity of climate change (including by decreasing greenhouse gas emissions or increasing greenhouse gas sinks).
Net zero emissions:	The state where an entity reduces/effectively offsets all its greenhouse gas emissions.
Net zero carbon emissions:	The state where an entity reduces/offsets all its carbon emissions (CO2). This is also termed 'carbon neutral'.

APPENDIX 2: Is there still climate controversy?

Despite the extensive scientific evidence and high level of agreement amongst climate scientists for human activities causing climate change, there has been and remains some level of debate in the public sphere as to whether this is true. The issue has also become highly politicised in some parts of the world.

Without going into the reasons underpinning this debate/views, there are three main positions regarding climate change:

- global warming is occurring, primarily due to human activity, so climate change is also the result of human activity
- global warming and climate change are occurring but as natural, cyclic events unrelated to human activity ('denial')
- global warming is not occurring so neither is climate change ('denial')

Other common climate-related claims include that climate impacts are not bad, that climate solutions will not work and that the climate movement/science is unreliable.

Over the last decade, climate change 'denial' has increasingly become a fringe position, mirroring that of the anti-vaccine movement in its political stance of railing against governments and their actions.

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