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The hot issue of climate change

For some time, most people have accepted that climate change is real, is already happening and is the result of human activity and not just a natural occurrence.

As the CSIRO states, "...there are no known natural factors that can explain the observed warming."¹⁷

The cause is straightforward. Carbon dioxide and other greenhouse gases warm the surface of the planet naturally by trapping solar heat in the atmosphere. This is a good thing because it keeps our planet habitable. However, modern living – especially in developed and major developing countries – relies on using large amounts of fossil fuels such as coal, gas and oil. The resulting pollution and other activities create a dramatic and unsustainable increase in carbon emissions. All of this activity means we have dramatically increased the amount of carbon dioxide and other greenhouse gases in the Earth's atmosphere.

17 CSIRO *Climate questions, science facts*.
See www.csiro.au/resources/climate-questions-science-facts.html

As a result, over the past century the global average temperature has risen 0.74 degrees Celsius. Average Australian temperatures have risen by around 0.9 degrees Celsius since 1950. This temperature rise appears small but small increases in temperature could lead to hotter days, more severe storms, droughts and fire and higher sea levels. This could threaten lives, industries and jobs, sustainable agricultural production, fresh water supplies and the survival of native species and ecosystems. The Intergovernmental Panel on Climate Change (IPCC) assessment is that an average global warming of 2 degrees or more above the pre-industrial level could result in dangerous and irreversible climate change with dramatic social, economic and environmental impacts.¹⁸

Left unchecked, this problem of global warming will only get worse. The potential impact on Australia's economy is significant – it will create both costs and opportunities for business.

Concern over climate change linked to human activities has existed for many years.

Long before Al Gore's 2006 Oscar® winning documentary *An Inconvenient Truth*, a 1958 documentary film called *The Unchained Goddess* featured a scientist talking about "... the release through factories and automobiles every year of more than 6 billion tonnes of carbon dioxide." This film referred to how "our atmosphere seems to be getting warmer," and calculations that a few degrees rise in the Earth's temperature "would melt the polar ice caps."¹⁹

That was 50 years ago and since then the science has become far stronger.

18 IPCC 4AR *Summary for Policymakers* Climate Change 2007: Synthesis Report, Intergovernmental Panel on Climate Change, November 2007

19 You can watch a clip of *The Unchained Goddess* at www.youtube.com

What are greenhouse gases?

The ability to sustain our way of life depends on the Sun's warmth being trapped by heat-trapping gases in our atmosphere. These greenhouse gases act like a blanket around the Earth. They trap the Sun's heat and cause the planet to stay at just the right temperature needed for us to sustain our habitat and the way we live.

Without these greenhouse gases, it's estimated the Earth's temperature would be about minus 18 degrees Celsius.

It is critical that your business has some understanding of greenhouse emissions and climate change because through laws, the supply chain, consumer demands and the price we pay for electricity, it will touch every business in Australia.

Unfortunately, too many of these heat-trapping gases have been released into the atmosphere over the past 200 years or so. Other activities such as deforestation (cutting down trees and not replacing them) also have an impact. As a result the world is retaining more heat. This is called the enhanced greenhouse effect.

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Think of it as a bank; a greenhouse bank. For 200 years we've been depositing greenhouse emissions into this bank. Even if we were to stop creating greenhouse emissions tomorrow, we're going to be getting interest on those existing deposits for many years to come. That interest comes in the form of a warming planet.

Fortunately there are things we can do to help and it's not too late to make a difference. Our climate is changing but we have the time and opportunity to minimise that change. SMEs may feel they don't have enough impact to make a difference, but they do.

Which greenhouse gases are generated by human activity?

Most scientists agree that human-induced global warming is caused by atmospheric increases in the following heat-trapping greenhouse gases (also called carbon pollution):

Carbon dioxide (CO₂)

CO₂ is released through deforestation, the burning of vegetable matter and the combustion of fossil fuels such as oil (for transportation) and gas and coal (for energy generation). It is also a gas used in raw form in many production activities.

Methane (CH₄)

CH₄ is usually caused by the decomposition of landfill waste, the exhalation from cows, sheep and other ruminant animals, rice growing wetlands and fossil-fuel production.

Nitrous oxide (N₂O)

N₂O is a greenhouse gas that's generated by commercial and organic fertilisers, the combustion of fossil fuel, the production of nitric acid and the burning of biomass.

Perfluorocarbons (PFCs)

PFCs are by-products of uranium enrichment and the aluminium smelting process and are used in refrigerating units.

Hydrofluorocarbons (HFCs)

HFCs are used in fridges and the manufacturing of electrical equipment such as semiconductors.

Sulfur hexafluoride (SF₆)

SF₆ is mainly used to insulate high-voltage equipment.

When did it all start to change?

Our ability to have an impact on the climate began at the end of the late 18th century. This was the period when Britain experienced a significant transition from a manual labour and draft animal-based economy into one that utilised machine-based manufacturing.

In the process, a major transition in manufacturing, mining, transport and agriculture began that spread throughout the world. All-metal machine tools, canals, improved roads, railways and the introduction of coal-fired steam power fundamentally changed society over a period that became known as the Industrial Revolution. It was during this time humans started to create significant amounts of carbon dioxide pollution.

This was one of the by-products of using and burning coal as a source of energy. It was to have a cumulative impact on the global climate that has led to where we are today.

What about the last hundred years?

In the last century the global climate has been warming. On looking at this, scientists had to ascertain how much was caused by humans and how much was naturally occurring. Some of these increases could easily be explained by natural factors such as radiation outputs from the Sun and natural variations caused by volcanic eruptions.

The evidence linking climate change to human activity is now overwhelming. Developed countries use far more power and resources than they need to and the massive growth in emissions and resource use by developing countries like India and China could alone drive changes in the climate.

However, climate science is at a point where it can show that global temperature increases are caused by the activities of humans. Indeed, the U.S. Geological Survey states that 'human activities release more than 130 times the amount of CO₂ emitted by volcanoes.'²⁰

20 See www.usgs.gov

The evidence linking climate change to human activity is now overwhelming. Developed countries use far more power and resources than they need to and the massive growth in emissions and resource use by developing countries like India and China could alone drive changes in the climate. This is why it's vital for the whole world to move in a unified way towards combating the problem.

Even though some people still question whether smoking causes cancer, the majority of us have accepted that it does. We all need to take a similar approach to climate change. The science is solid. The daily impacts of businesses and individuals is having a negative impact on the planet. The key thing is how do we balance that impact? We need to develop in a way that ensures we live sustainably on our planet, but we need to do so in a manner that underpins the viability and prosperity of our business operations.

The climate change caused by global warming will fundamentally affect the way all businesses operate in the future.

What impact will climate change have on Australian business?

The climate change caused by global warming will fundamentally affect the way all businesses operate in the future. Your decision to implement sustainable practices in your business now is a key building block on the path to dealing with this issue.

According to the futurist Dr Patrick Dixon, the debate about climate change could also be shaped by emotion just as much as by the science. His belief is that companies will go faster and further than government when it comes to combating the issue. As the ramifications of climate change begin to hit home, there's a high likelihood that consumer pressure will change every product and service sold. This is why now, more than ever, SMEs need to listen, learn and act.

Dixon argues we have known about the science of climate change since the 1950s. The difference today is that people are now emotionally engaged. As Dixon says, "Most children alive today will find their future lives are deeply affected by new patterns of disease, extreme weather patterns, and by strict controls on energy and carbon use. Future generations will judge us by how we respond (today)."²¹

21 See www.pdixon.blogspot.com and/or www.globalchange.com

These are key issues on which we must challenge ourselves as we move to deal with the problem of climate change. You need to consider how you will improve your financial bottom line while still taking into consideration the future wellbeing of tomorrow's Australians.

The physical risks of climate change are very real for Australian businesses. While climate change cannot be related to any single event, recent trends in extreme weather events show increasing numbers and severity.

For example, in 2006 when Cyclone Larry wiped out about 80 per cent of the Queensland banana crop, it hit the banana industry hard with losses amounting to hundreds of millions of dollars.²² The knock-on impact was also felt by many SMEs in that region and consumers paid much higher prices for bananas for many months.

According to the re-insurance company Swiss Re, 2008 was one of the worst years in history, with natural catastrophes costing property insurers more than US\$44 billion.

Storms caused the greatest number of claims. Industry experts have estimated those businesses in areas at risk of storms and floods due to climate change could see insurance premiums double.²³

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In a speech to the Lowy Institute in November 2009, then Australian Prime Minister Kevin Rudd said that estimates of increased storm surges and rising sea levels could put 700,000 business and residential properties at risk. Mr Rudd stated that the value of coastal property exposed to these risks was between \$50 and \$150 billion.²⁴

In the longer term, businesses may find themselves unable to afford or obtain insurance because they are on a low-lying part of the Australian coast. Or they may not be able to get cover for facilities they own in a part of Asia that's at risk of flooding. These developments could well happen over time and they will have significant impacts on a wide range of businesses when they do.

22 'Cyclone devastates Australia's banana crop', *Sydney Morning Herald*, March 20, 2006

23 See http://business.timesonline.co.uk/tol/business/industry_sectors/banking_and_finance/article5949991.ece

24 *Distinguished Speaker Series*, The Hon Kevin Rudd MP, The Lowy Institute, Sydney, 6 November 2009

Upside for the business

Climate change and the responses to it present opportunities for business. For example, the Australian Government initiative to fund energy efficiency programs in homes created thousands of jobs.

The NSW Business Chamber identifies a number of ways businesses can benefit from climate change:²⁵

1. Access to an increasing number of government grants that are available for businesses wishing to undertake eco-efficiency measures.
2. Potential to be a preferred supplier if your business can demonstrate it has reduced the environmental impact of its operations. If you start the shift now to becoming a more sustainably run business, then you might end up with a head start on your competitors.
3. Developing products and services that differentiate and set you apart from your competition (adopting early changes to your business practices).
4. Research and development on new ideas. Have you developed a solution for problems like flash floods, freak storms and increased wind speeds? Got an idea that reduces greenhouse emissions from other companies? If you can find ways that minimise the impact that climate change will have on the way we live our lives and run our businesses, then you could be part of a growing new business sector.

Preparing for change

While reducing greenhouse emissions may keep temperatures down and potentially avoid extremes of climate change, the overwhelming scientific consensus is that some degree of climate change is now unavoidable. In terms of timing, the predictions are that the weather and physical impacts may be beginning now and will become more noticeable over the next ten years.

The timing of regulatory and economic changes is similar. Many companies, governments and people around the world are already making decisions based on changes to the climate and the fact the world is looking to reduce carbon emissions. These changes will increase over time as governments legislate to reduce carbon emissions and provide incentives and transition plans for business. Companies will also seek to reduce the emissions in their own operations and those within their supply chain.

25 See www.nswbusinesschamber.com.au

Predicted climate change impacts across Australia forecast more extreme weather events (storms, floods, droughts etc) as well as changing patterns of temperature and rainfall (less rain and higher temperatures across Australia's south and south-east and more rain and higher temperatures across the central and northern coastal areas).

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Each of these areas of impact will raise different issues for businesses depending on what they do and where they operate but some key issues to consider are:

- physical impacts on buildings
- supply, transport and distribution interruption
- changing agricultural patterns
- insurance and emergency planning.

Regulatory and economic responses will be positive and negative – there will be increased costs, accounting and reporting requirements but there will also be new business opportunities and transition assistance (both in terms of financial assistance and information and advice). Some issues to consider are:

- changes to energy costs (electricity, gas, petrol, diesel)
- legal compliance with new laws
- accounting for your carbon emissions
- customer and supplier expectations
- opportunities for new business
- opportunities for assistance.

So what are you going to do about it?

Media coverage of environmental issues often focuses on natural disasters or negative impacts. Little coverage is given to the positive impact that environmental improvement can have on our businesses and society if we start to do something about it.

The response to climate change and higher energy prices will impact your business. But it is going to impact on all other SMEs too. Rather than look at this as a negative, why not turn your response to this into a competitive advantage?

It's a given that SMEs have to be sustainable from an economic standpoint. But it's also important for them to become sustainable in the way they interact with the environment and the communities in which they operate.

Think about the four key strategies for responding to climate change:

1. **Adaptation** – how can you change your practices and build resilience into your operation to adapt to the impacts of climate change?
2. **Mitigation** – how can you control your costs and contribute to solving the problem? How can you offset or reduce your carbon emissions?
3. **Research and development** – is there an area of your business where you can build extra capacity to manage the impacts of climate change, is there a new business opportunity to explore?
4. **Communication** – how do you learn more so that you are communicating effectively with your employees, customers and suppliers? Informed communication can underpin sound decision-making on this issue.

For more detailed information on climate change, what it means for various business sectors and the strategies needed to respond to it, go to Australia's CSIRO website: www.csiro.au

The bottom line

At the end of the day the move to combat climate change represents the biggest new business opportunity of the coming century. How your business reacts will decide your place in the low-carbon economy.

Case study: Sensis – Commitment to Climate Change

On 3 February 2010, Sensis launched its Commitment to Climate Change.

As part of the launch, Sensis announced that its Yellow Pages® and White Pages® print and online directories were certified carbon neutral through the Australian Government's Greenhouse Friendly™ program. This program has since transitioned to the National Carbon Offset Standard Carbon Neutral Program.

Sensis will achieve this by offsetting the carbon emissions of its directories through accredited projects and providers in Australia.

Sensis had a Life Cycle Assessment of its Yellow Pages® and White Pages® print and online directories undertaken so the full 'cradle to grave' impact of the directories could be understood. This enabled Sensis to identify opportunities to reduce its carbon emissions and play its part in tackling climate change.

Sensis also announced its target to reduce its operational greenhouse gas footprint by 5 per cent year-on-year. To help reach this target, Sensis has enabled video conferencing at 21 office locations, introduced 4 cylinder diesel cars into the Sensis fleet and is scoping new IT Purchasing Guidelines incorporating energy efficiency.

Sensis will measure and monitor these impacts annually through a detailed Emissions Monitoring Plan and report annually on its carbon footprint and detail improvements.

Go to www.about.sensis.com.au/sustainability for further information on Sensis' commitment to sustainability.

What is emission trading?

At the moment, polluters are able to release carbon pollution into the atmosphere at no financial cost. Emission trading is a program that puts a price on pollution to make it less attractive for polluters to pollute, and make it more attractive for polluters to invest in cleaner production. The idea is the more you pollute, the more you pay.

Under an Emissions Trading Scheme (ETS), a government adds up the pollution generated by top companies and divides it into emissions permits. If you're a leading company that pollutes 100,000 tonnes a year, then theoretically you would have to hold 100,000 emissions permits.

As an ETS puts a price on carbon that is polluted into the atmosphere, a company has an incentive to reduce its emissions if it's cheaper to do so than to buy credits. To ensure that such an ETS reduces the amount of carbon pollution emitted by the leading polluters, each year the government can simply reduce the number of emissions permits that they make available.

Emission trading is not new. Countries have used it in the past to reduce nitrous oxide and sulphur dioxide (which cause acid rain). Australia started one of the first carbon emissions trading schemes in the world when the NSW Government established the Greenhouse Gas Abatement Scheme in 2003. Twenty nine countries are also part of the European Union Emissions Trading Scheme that began in 2005.

Measuring your carbon footprint

When it comes to measuring the size of your business' carbon footprint, you need to measure the greenhouse emissions emitted by your overall operations.

For most SMEs, all you need to do is use a carbon calculator to calculate your carbon emissions. Go to <http://calculator.futureclimate.com.au> for a good calculator for this type of basic reporting.

However, some SMEs may want to follow the example of their major clients by measuring their direct and indirect Greenhouse Gas (GHG) emissions in far more detail. The www.ghgprotocol.org website has information on how to measure and report on Scope 1, 2 and 3 greenhouse emissions. Swinburne University also has a short course in carbon accounting. Go to www.swinburne.edu.au/ncs for more information.

There is much focus on using emission trading to address greenhouse gases (also called carbon pollution). This is important for business to understand because emission trading for carbon is now on a scale not seen before. Carbon is so inextricably linked to so many things we do that the price impact of any emission trading activity can touch all businesses and consumers.

How will such a scheme affect SMEs?

Emission trading is designed to directly affect large polluters, so SMEs are not required to directly participate in such a scheme – unless they choose to do so.

According to the NSW Business Chamber, the ETS implications for SMEs include:²⁶

- increases in energy prices
- further government regulation – potentially covering energy efficiency and energy sources
- corporate regulation – if a major business affected by an ETS is a client of your company, you could face a requirement to be ‘greener’ in your business operations
- supply chain dynamics – raw materials may become more expensive and companies may demand that SME suppliers become more sustainable and accountable for their environmental impacts
- consumer demands – as consumer awareness and education increases, consumers may purchase products that are seen to be ‘greener’ than others.

However, by reducing your emissions and becoming more efficient in your use of resources (such as electricity and gas), SMEs can greatly minimise or potentially avoid the cost of an emissions trading scheme. In the energy chapter of this book, there are a range of tips that will show you how to save money and reduce your business’ energy use.

How can SMEs reduce their greenhouse gas emissions?

According to the NSW Business Chamber and other bodies, there are a number of things SMEs can do straight away as part of their response to this issue:

1. Understand how much energy is used by your business and work out ways to reduce your consumption levels. It’s worth recording your efforts and results in order to show evidence of your achievements in this area.

26 See www.nswbusinesschamber.com.au

2. Assess if your business is part of the supply chain of one of the 1000 or so companies required to report under the *National Greenhouse and Energy Reporting Act 2007* (NGER Act).²⁷
3. Think about how your operations would be affected if your energy prices were to go up by 20 per cent or more. Plan for such an eventuality and you will be on the front foot in your response to how climate change and regulations will affect SMEs in your industry. While you're at it, how would you respond if the cost of your raw materials went up by 20 per cent?
4. Increasingly, government grants or assistance will be available to SMEs to help them in the transition to a low-carbon economy. Your company should be on the look out to take advantage of these funding opportunities. Industry groups can assist with this and a guide to grants is available to purchase from Equilibrium OMG at www.eqlomg.com.
5. Look for the 'greener' alternative. Look at your raw materials – are they as environmentally sourced as they could be? When you're buying products and services, ask to be shown the environmentally better option and compare it with what you're using now.
6. Assess how much your customers and stakeholders are motivated by climate change and environmental issues. You might find they have implemented environmental ideas your company could adapt. If they're environmentally inclined, engaging them on this issue is a good way of showing that you share their corporate values.
7. All companies use equipment that uses energy. Obtain a power meter and measure how much energy is used by the appliances your business uses. Understanding this goes a long way to reducing the daily energy use of these appliances or to buying more energy-efficient alternatives when you come to replace them.

27 *National Greenhouse and Energy Reporting Act 2007*. See www.climatechange.gov.au

Carbon offsets – what you need to know

A carbon offset is any activity that:

- removes greenhouse gases from the atmosphere
- captures greenhouse gases that would otherwise be discharged into the air
- avoids the generation of greenhouse gases in the first place.

What type of carbon offsets should you buy?

You should look to purchase carbon offsets that are accredited to a recognised standard. The Carbon Offset Watch initiative says the best available offsets are those that are accredited under the international Gold Standard and Clean Development Mechanism. These as well as those offsets listed as eligible under the National Carbon Offset Standard (NCOS).

What should you look out for?

Carbon Offset Watch recommends that companies get a documented guarantee from their offset retailer that they will 'retire' the offset from the market on your behalf. Alternatively, they should transfer the ownership of the carbon offset to your company so that you can retire it instead, which avoids the offset being used twice.

Carbon offsets can be listed in a register that tracks their ownership. When you buy an offset, this register can record that your offset has been removed from the market. This helps to ensure that it's not sold again.

The Australian Competition and Consumer Commission (ACCC) has developed guidance for consumers and industry on the Trade Practices Act implications of carbon offset claims. Go to www.accc.gov.au/content/index.phtml/itemId/807902 for more information.

The NCOS was introduced on 1 July 2010, following the closure of the Greenhouse Friendly™ program. The NCOS provides national consistency and consumer confidence in the voluntary carbon market. It provides guidance on what constitutes a genuine, additional voluntary carbon offset and sets minimum requirements for achieving 'carbon neutrality' for organisations and products.²⁸

How can SMEs offset their greenhouse gas emissions?

No matter how much a business reduces its environmental impact, it will still produce greenhouse emissions. As these emissions contribute to man-made climate change, your company may want to consider carbon offsetting part or all of your emissions.

The basic concept behind a carbon offset is that if your company generates 10 tonnes of emissions, then you fund a project that reduces emissions in the atmosphere by the same 10 tonnes. This can be achieved by funding projects that:

- reduce emissions – this can be achieved via energy efficiency projects that reduce energy use, by generating renewable energy or by capturing methane at landfills
- sequester carbon from the atmosphere – this can be achieved by planting trees or by avoided deforestation.

It may be too expensive to offset all your emissions. If that is the case, as a starting point why not look to offset your business' car and air travel emissions?

28 See www.climatechange.gov.au/government/initiatives/national-carbon-offset-standard.aspx