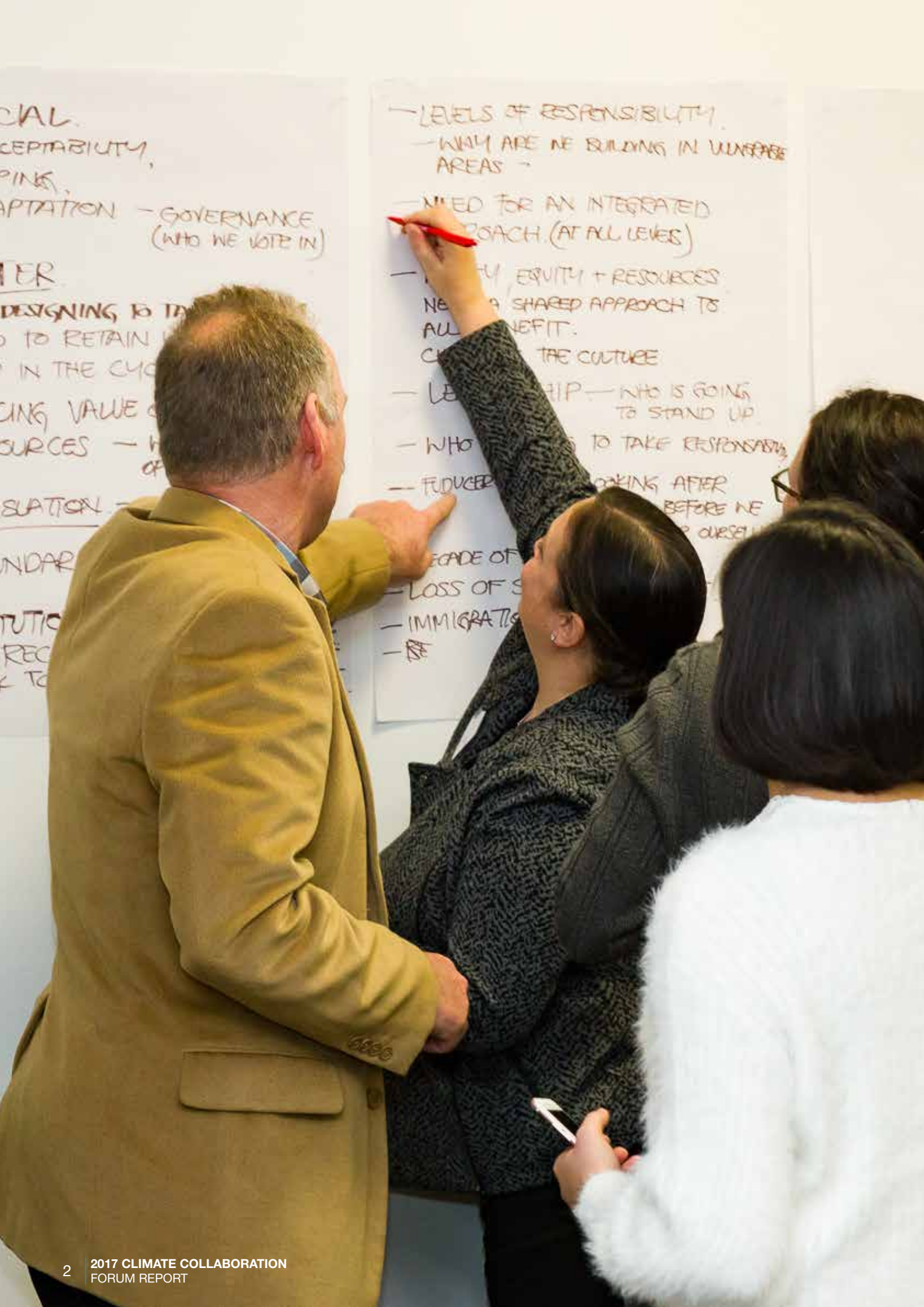
United Nations
Association
of Australia
Victorian Division

2017 CLIMATE COLLABORATION FORUM REPORT


LEVELS OF RESPONSIBILITY
WHAT ARE WE BUILDING IN VULNERABLE AREAS
NEED FOR AN INTEGRATED
EQUITY + RESOURCES
SHARED APPROACH TO
THE CULTURE
WHO IS GOING TO STAND UP
TO TAKE RESPONSIBILITY
LOSS OF
IMMIGRATION
GOVERNANCE (WHO WE VOTE IN)
DESIGNING TO
TO RETAIN
IN THE CYC
VALUE
SOURCES
SLATION
LOOKING AFTER
BEFORE WE

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SUMMARY

This report records the outcomes of six workshops in which 175 practitioners in climate change management shared their ideas about the future pathways for Australia to achieve net zero emissions of greenhouse gases.

Under the 2015 United Nations Paris Climate Agreement, the world must achieve "a balance between anthropogenic emissions by source and removals by sinks in the second half of this century" (Article 4.1) if the risk of catastrophic climate change is to be reduced.

The focus of the workshops was the way in which all sectors of the community could build on current activities and collaborate further to help establish a nation-wide, inclusive approach towards reaching net zero emissions.

The workshops stressed the imperative for urgent action while also taking a long-term view.

Common to each sector is the immediate emphasis on increasing the efficiency of energy use and enhancing the availability of zero emissions electricity, then progressively switching to the use of such electricity, improving processes in which the emission of greenhouse gases is unavoidable and developing carbon sinks to absorb any remaining emissions.

KEY RECOMMENDATIONS INCLUDED THE FOLLOWING:

> **Engage the whole community**. Recognising that sectors are motivated for different reasons, improve understanding and facilitate collaboration between all stakeholders. These stakeholders include all levels of government, business, the financial sector, manufactures, farmers, indigenous people and research and teaching institutions.

> **Establish a new national framework.** This would combine the efforts of national and state governments as well as cities and other local governments. This should clarify roles and responsibilities.

> **Establish common medium-term and long-term goals** for the reduction in emissions of greenhouse gases. These should be adopted by all sectors of the community. Enable progress towards these goals to be measured and assessed by all. Build these into strong and enduring strategies for emissions reduction.

> **Establish clear standards, regulations and codes of practice**.

> **Ensure transparency** in the measures taken by all sectors towards emissions reduction.

> **Provide clear market signals**, including a carbon pricing mechanism. Facilitate private and public investment. Build upon current opportunities relating to new infrastructure. Recognise the importance of upfront capital incentives.

> **Promote innovation, research and development**.

> **Enhance opportunities for training and education**.

> **Build international relations** and learn from the experiences of other countries.

> **Provide leadership**.

INTRODUCTION

In a remarkable instance of global collaboration almost every nation in the world is supporting the 2015 UN Paris Climate Change Agreement. The Agreement itself includes the requirement for nations "to promote regional and international co-operation in order to mobilize stronger and more ambitious climate action by all Parties and non-Party stakeholders, including civil society, the private sector, financial institutions, cities and other subnational authorities, local communities and indigenous peoples". Furthermore, a goal of the Agreement is for the world "to achieve a balance between anthropogenic emissions by sources and removal by sinks of greenhouse gases in the second half of this century" (Article 4.1).

In response to this call, the United Nations Association of Australia (UNAA) is promoting the development of a national and inclusive Climate Change Management Framework, which reflects both current collaboration in climate management and promotes the future collaborative efforts needed if Australia is to achieve net zero emissions by 2050. Visit http://unaavictoria.org.au/what-we-do/climate-change-program/ for more information about the UNAA Climate Change program.

Achieving net zero emissions within a reasonable time (by 2050) will require a nationwide effort sustained over the next few decades. It should be robust, durable and adaptable and buffered from political uncertainties. It should help to unify the efforts by all Australians to undertake the urgent changes needed to help manage our climate successfully. According to the UN Development Program, 50% to 80% of mitigation and adaptation actions necessary to tackle climate change are or will be implemented at the sub-national or local levels of governance.[1] This will therefore require the participation of, and cooperation between, all levels of government and many other sectors of the community.

On 7 June 2017, the UNAA held its inaugural **Climate Collaboration Forum** – a full day event designed to determine how Australia's key climate stakeholders can work together to achieve net zero emissions over the next three decades.

175 people representing 74 organisations with a wide range of interests and expertise came together to showcase their own programs and acknowledge the best of Australia's current efforts through the presentation of the 2017 UNAA World Environment Day Climate Action Awards. They explored, through small group workshops, the means by which all sectors of the community can work together to:

- ensure a smooth energy transition in the electricity, manufacturing, building and transport sectors
- achieve best practice in the management of land resources
- make best use of people, skills and markets to achieve the commitments under the Paris Climate Agreement
- mobilise the wider community
- build strong climate cities.

This report starts with an overview of the actions already taken in Australia to address climate change.

Notes on the current emissions of greenhouse gases and on possible pathways to net zero emissions then provide a context for the recommendations from each workshop.

For each workshop section there is a summary of the main points of discussion and a list of the key proposals for collaborative action.

1 Network of Regional Governments for Sustainable Development and The Climate Group, Subnational Governments at the forefront of climate action, p. 2, https://www.un-ngls.org/

THE CONTEXT

An assessment of the way forward is helped by a common understanding of the current activities in Australia relating to climate change, the current level of emissions of greenhouse gases and the types of actions that will be required over the next few decades to reach net zero.

In Australia, the management of human induced climate change has passed through several phases. It has involved governments at all levels, many parts of the private sector, non-government organisations, research and training bodies and individual citizens.

> NATIONAL GOVERNMENTS

By the 1980s, the CSIRO and others were actively researching climate change and warning about the possible consequences. Following the establishment of the Intergovernmental Panel on Climate Change (IPCC) and the passage in 1992 of the United Nations Framework Convention on Climate Change (UNFCCC), the Council of Australian Governments endorsed the National Greenhouse Response Strategy. Its target was to reduce the emissions of greenhouse gases by 20% by 2005.

By 1997, the strategy was considered to be ineffective. Under the UNFCCC's Kyoto Protocol, the agreed emissions target for Australia was then to be an 8% increase by 2012.

Over the next ten years, a revised Australian Greenhouse Gas Abatement Program was established and the mandatory Renewable Energy Target (RET) and emissions reporting scheme introduced. There was a range of energy efficiency schemes.

The five years from 2007 saw an acceleration in activity; there was a new, unconditional emissions target of 5% below 2000 levels by 2020, the RET was increased and the National Carbon Offset Standard introduced. In 2011, the *Clean Energy Act* was passed, setting a long-term goal of reducing emissions by 80% below 2000 levels by 2050. The Act provided for a price on carbon and the establishment of government organisations to administer the program, advise government and provide financial support to emission reduction projects.

Much of the Act was repealed in 2013 but the climate finance organisations (the Australian Renewable Energy Authority

and the Clean Energy Finance Corporation), the regulatory authority and the RET were retained. The Emissions Reduction Fund began to operate in 2015 and the associated Safeguard Mechanism in mid-2016. By then, the Australian Government had submitted to the United Nations its post-2020 emissions reduction target of 26-28% below 2005 levels by 2030. In 2016, the Australian Government signed the UN Paris Agreement on Climate Change.

Recent concern for the reliability of electricity networks, the availability of fuels and the need to integrate renewable energy into the grid has resulted in several national reviews and proposals by the Australian Government to augment power supplies.

> SUB-NATIONAL GOVERNMENTS

Meanwhile, the governments of all states, territories and cities as well as many other local governments had taken action to mitigate and adapt to climate change. Almost all **states** promote energy efficiency, particularly for buildings, and have committed to (varying) renewable energy targets. Most have target-based emission reduction schemes backed up by a strategy/plan and, in some cases, legislation. The governments of the NSW, Queensland, the ACT, South Australia and Victoria aim to achieve net zero emissions by 2050 and are investing in major renewable energy projects. All states have climate adaptation plans.

All **capital cities** have climate action plans with most having adopted emission reduction targets. Melbourne, Adelaide, Sydney and Canberra have committed to zero net emissions. Melbourne, Sydney and Canberra have targets for renewable energy, with Canberra aiming for 100% by 2020.

Of Australia's 500 **local governments**, many have set varying emission reduction or renewable energy targets. In some cases, the target is net zero emissions and 100% renewable energy. Regional organisations, such as those responsible for managing water and other natural resources, greenhouse alliances of local governments and renewable energy collectives are also active in this realm. The 56 natural resource regions covering all of Australia now have climate adaptation plans.

> PRIVATE SECTOR

Climate change activities, plans and targets of governments at all levels affect the context for the involvement of the private sector and associated on-ground change.

There is a wide range of voluntary initiatives in the private sector relating to climate management. These include participating in certification and rating schemes and setting targets for the reduction of emissions, energy efficiency and the use of renewable energy. Some companies build a carbon price into their business plans and include supply chains in their assessments. Private landholders can participate in schemes to retain and capture carbon on their properties, for instance.

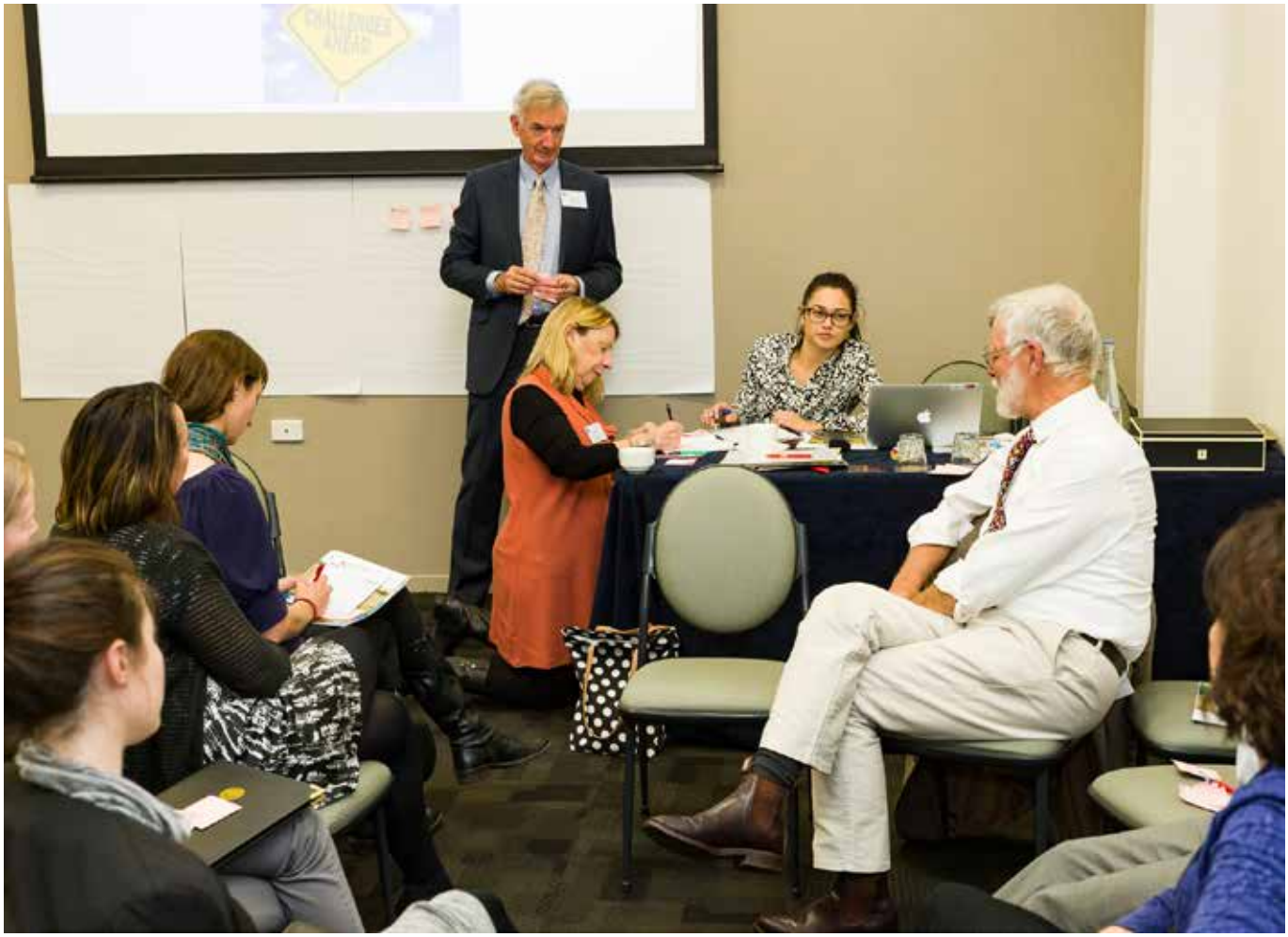
Several electricity generators have signalled their intention to phase out the use of coal by 2050 and the closure of coal-fired power stations has begun.

Initially off to a slow start, investment by the private and public sectors in clean energy increased by 50% in 2016. According to the Clean Energy Council's annual report, about 17,500 gigawatt-hours of renewable energy was generated in 2016, more than half-way to the 2020 RET goal of 33,000 gigawatt-hours a year. A record amount of new large-scale solar and wind power is being added to the grid this year.

The availability of finance has been a limiting factor. Uncertainty in government policy has constrained investment. Major banks and the Clean Energy Finance Corporation provide loans, while the Victorian Government and several banks have issued Green bonds.

So far, the carbon market in Australia has been limited to arrangements under the Kyoto Protocol and the reverse auctions associated with the Emissions Reduction Fund. Trading in Renewable Energy Certificates contributes to the Renewable Energy Targets.

Businesses are required to comply with a range of government regulations for reporting their emissions of greenhouse gases and meeting energy efficiency standards. The Australian Prudential Regulation Authority recently reminded the directors of all boards that they must consider and disclose foreseeable climate-related risks.



> MONITORING, RESEARCH AND INNOVATION

The pathway to net zero emissions by 2050 is still being explored. While most of the technical components are available, the challenge of transitional and societal change at the necessary pace remains. Research and innovation are critical components contributing to climate management.

Since the 1980s, a wide range of monitoring, data analysis, research and education relating to climate management has evolved. Major organisations such as the CSIRO and Bureau of Meteorology (BOM) have been joined by research and teaching programs at most of Australia's 43 universities. Co-operative research centres have addressed various aspects; three are now operating. Australia has a substantial pool of knowledge and expertise in specialist groups and consulting organisations. An Australian arm of the European Union's Climate-KIC initiative to promote and facilitate climate innovation has recently been established.

> INDIVIDUALS

Responsibility for contributing to climate change initiatives also rests with individual citizens. Australia has the highest proportion of households with solar PV in the world. Individuals can participate in government schemes relating to energy efficiency and renewable energy. They can also modify and change their lifestyle, consumption and investments. There are voluntary pledging schemes operated by ClimateWorks Australia and the Victorian Government. There are web-based facilities to enable individuals to calculate the total emissions generated by their lifestyles.

There have been several surveys about the attitude of Australians to climate change. A CSIRO report in 2015 noted that "people think big polluting countries, multinational corporations and wealthy countries are the most responsible for causing climate change". The three groups, with the addition of governments, were also seen as most responsible for responding to it. Individuals were rated least responsible for both causing climate change and responding to it. The same report highlighted that people undertake a broad range of climate-related activities for a broad variety of reasons.

> OUTCOMES

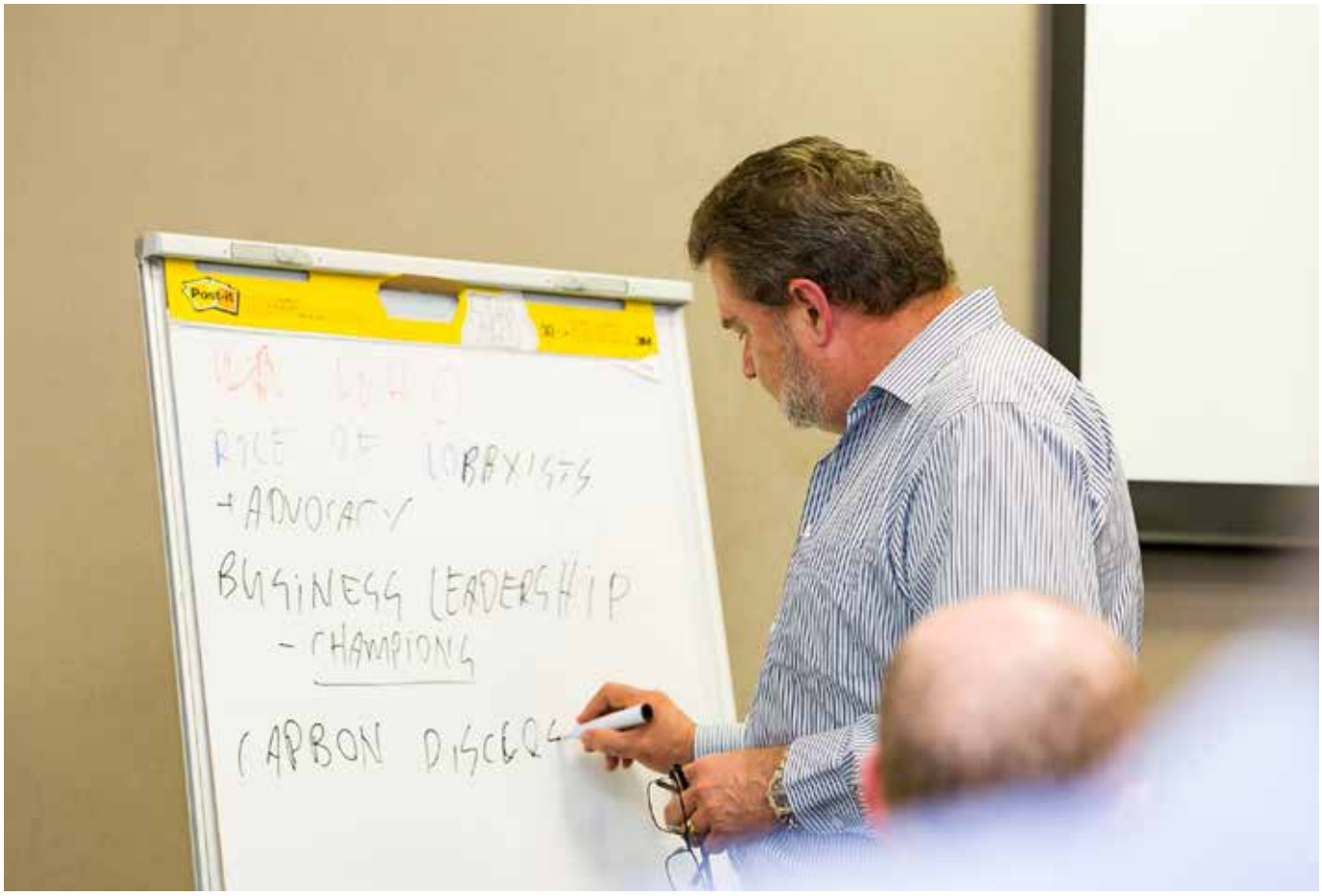
Over the last two decades, emissions of greenhouse gases per capita and the emissions per unit of GDP have decreased. However, the nation's total emissions have not fallen below those in 1990. They rose from 1990, peaked in 2006, fell back to 1990 levels but have been rising again since mid-2014. Australia's accelerated transition to net zero emissions required under the Paris Agreement is just beginning.

> TRANSITION PATHWAYS

The means by which net zero emissions of greenhouse gases can be achieved has been extensively researched in Australia and other countries (Jotzo, F. and Kemp, L, "Australia can cut emissions deeply and at low cost", Centre for Climate Economics and Policy, Australian National University, 2015). In all cases, the essential components are:

- promoting energy efficiency so that the demand for energy is minimised,
- converting to an electricity supply system with a larger capacity but with no emissions of greenhouse gases,
- switching from the direct use of fossil fuels to zero emissions electricity,
- improving industrial and agricultural processes to minimise their emissions; and
- offsetting the remaining emissions of greenhouse gases by carbon farming and forestry.

To illustrate the relevance of this to Workshops A-D, the report by ClimateWorks and the Australian National University - *Pathways to Deep Decarbonisation in 2050: How Australia Can Prosper in a Low Carbon World* (2014) - is used. The pathways were designed to achieve net zero emissions of greenhouse gases by 2050. The aspects relevant to each workshop are summarised in tables in each section.



WORK SHOP

A

THE ENERGY TRANSITION (ELECTRICITY & MANUFACTURING)

CO-CHAIRS:
Tony Wood, Energy Program Director, Grattan Institute
Rob Kelly, Research Projects Manager, ClimateWorks Australia

FACILITATOR:
Steve Lennon, Sustainability and Climate Change specialist; UNAAWA President

This workshop considered ways to work together to improve efficiency, reduce demand and successfully switch to renewables across the electricity and manufacturing sectors.

Emissions from electricity production in Australia are 34% of the nation's total emissions. This sector has experienced the largest growth with a 45% increase in emissions since 1990. Emissions from electricity production decreased from a peak in 2009 until 2014 when emissions started to increase again. In 2016, 16% of electricity was generated from renewables (up from 14.6% in 2015) and 84% from fossil fuels. Of the renewables, hydro contributed 7%, wind 5%, solar 3%, and bioenergy 1.3%. As a proportion of all electricity generation, renewables were highest in Tasmania followed by South Australia, Victoria, NSW, Western Australia and Queensland. Of the fossil fuels, 75% was coal and 22% gas.

34%

Emissions from electricity production in Australia are 34% of the nation's total emissions.

45%

Largest growth with a 45% increase in emissions since 1990.

16%

In 2016, 16% of electricity was generated from renewables.

A transition pathway: All transition paths for electricity generation involve increasing the proportion of electricity generated by renewables with a penetration of 48% by 2030 and 71% by 2050. This will be driven largely by a decrease in costs. The variability of wind and solar is managed by combining storage with renewables and/or using geothermal, peaking gas, carbon capture and storage or nuclear. Electrification across all sectors drives a 2.5-fold increase in electricity demand by 2050.

Stationary energy, excluding electricity, is responsible for 18% of total emissions. Emissions in this sector have increased steadily for the past ten years (despite seasonal fluctuations) and are up 43.6% since 1990. Industrial processes are responsible for a further 6% of emissions. These are rising again and have increased by 29.2% since 1990.

> *A transition pathway: In manufacturing, process improvements and equipment upgrades to existing plants and best practice during construction result in the energy intensity of production, before electrification, decreasing by 40% by 2050. There is a significant shift from coal and oil use towards electricity, bioenergy and gas, driving a 60% reduction in energy emissions. The use of electricity triples. This is driven partly by an increase in iron and steel production from electric arc furnace technology and a shift in mining to electricity-based technologies. Process emissions and fugitive emissions from industry are reduced by various means, including the partial use of bio-coke in iron and steel production, increased combustion of gases and carbon capture and storage. Highly potent synthetic greenhouse gases that are used as refrigerants are replaced by refrigerants with zero potential for global warming.*

Workshop participants agreed that it is possible to reach the Paris targets through fuel switching, electrification and non-energy emissions (e.g. carbon forestry) and that this transition is consistent with 2.5% economic growth and would not have to come at a cost to jobs. However, increasing energy pricing makes it hard for industries, such as the dairy industry, to keep up with the rest of the world and remain competitive at the same time.

And while in manufacturing, Australia could become a super power in renewables, which would benefit the overall economy, manufacturing has been compromised by energy prices.

Participants agreed that the electricity sector can help drive the achievement of the Paris Agreement. However, there will need to be strong and enduring strategy and policy development to ensure that the transition does not compromise industry; a carbon pricing mechanism; power market design; clear and realistic standards and regulations and carbon disclosure requirements.

WORKSHOP A: KEY PRIORITIES FOR COLLABORATION

- Empower citizens, particularly as energy consumers
- Target financial mechanisms
- Innovation – everywhere
- Agree that there will be a cost for the transition to a low carbon economy
- Avoid misinformation
- Engage whole community – acknowledge that individuals can make a difference
- Come together on particular issues, focus on what you agree on
- Don't let perfect get in the way of not too bad
- Ensure that the voices of those who would like to see change are heard

WORK SHOP

B

THE ENERGY TRANSITION (TRANSPORT & BUILDINGS)

CO-CHAIRS:
Antony Sprigg, CEO, Infrastructure Sustainability Council Australia
Scott Ferraro, Head of Implementation, ClimateWorks Australia

FACILITATOR:
Rebecca Jinks, Senior Sustainability Consultant, Cushman and Wakefield

This workshop considered ways to work together to improve efficiency, reduce demand and successfully switch to renewables across the transport and building sectors.

17%

Transport is responsible for 17% of emissions.

80%

Over 80% of these emissions are generated by road transportation.

56%

Emissions in this sector have increased steadily since 1990, with an average annual increase of 2.2%, culminating in a 56% overall increase on 1990 levels in 2015.

A transition pathway: A 70% improvement in the energy efficiency of cars and light commercial vehicles is achieved, mostly through electrification of vehicles, combined with fuel efficiency improvements and a continuation of the trend towards smaller vehicles. In freight, there is a 15% improvement for trucks by 2030, while rail and marine achieve 17% and 22% improvement respectively by 2050. Aviation achieves a 30% improvement in energy efficiency by 2050. Cars and light commercial vehicles shift from internal combustion engines to electric and hybrid and, to a less extent, hydrogen fuel cells. Natural gas is used in place of oil for road freight. CO2 emissions are reduced by two thirds while distance travelled doubles. Some air travel is replaced by electric fast rail between Australia's east coast cities. Biofuels replace half the oil used in aviation. Marine and rail sectors experience a modest switch to gas and biofuels.

22%

Buildings: Technologies used for heating, ventilation, air-conditioning and refrigeration are responsible for over 22% of all electricity consumption and associated emissions of greenhouse gases.

A transition pathway: There is a reduction in energy use per household of over 50%, while commercial sector energy use per square metre reduces to under 50%. New buildings are as efficient as possible and equipment is replaced by best practice models at the end of its useful life. 80% less energy use than current homes is possible across much of Australia's climate zones. A switch from natural gas to a decarbonised electricity supply results in the near elimination of emissions from buildings by 2050. This involves a move from gas to electricity for all heating, hot water and cooking equipment.

Discussion in this workshop centred on a variety of pathways to achieve the necessary energy transition in the building and transport sectors. These included low carbon electricity; electrification of vehicles; roads and rail transport (both passenger and freight) and a switch to clean fuels. Renewed investment in infrastructure (such as ageing railway infrastructure) could reduce costs, increase performance and improve energy efficiency.

Participants were realistic but not daunted by the challenges to be faced, which include the current lack of regulation of the transport sector; the need to lift mid-tier buildings up and limit the influence of political agendas in infrastructure sustainability. Further barriers include lack of a regulatory framework to support/incentivise change; insufficient community or sector action in lobbying/writing policy/pushing for change; the heavy reliance of the energy sector on subsidies and the need to aggregate infrastructure.

Participants believed, however, that as Australia is going through a huge period of investment, this is an opportunity for government and industry to use capital responsibly.

WORKSHOP B: KEY PRIORITIES FOR COLLABORATION

- Create a coalition of stakeholders including government, industry, NGOs to establish a roadmap for change. Push beyond business as usual
- Centralise and enable players to perform better and change practices
- Lobby. Advocate. Incentivise
- Create receptive communities
- While a national, holistic approach is necessary, start at the state level as tangible actions and results can be seen at this level. This can then become a national effort.
- Identify sustainability risks and opportunities across the industry sectors
- Formalise a regulatory framework (carbon budget) to drive performance
- Move away from subsidy-based mindset/framework and push the entire sector to take accountability
- Educate and mobilise the community and industry sector in ways that are empowering and transparent
- Establish codes of practices based on minimum standards
- Start conversations around infrastructure and ports so that the community understands and supports investment in sustainable infrastructure.

WORK SHOP C

WORKING TOGETHER TO MANAGE OUR LAND

CO-CHAIRS:
Sarah Boulter, Research Fellow, National Climate Change Adaptation Research Facility
Adam Beaumont, Asia Pacific Regional Director (Interim) FSC International

FACILITATOR:
Graham Hunter, UNAA Climate Change Program Coordinator; UNAA Victoria Board Member

With substantial emissions coming from agriculture and deforestation, what collaboration is needed to ensure sustainable capture of carbon and protection of carbon sinks; how do we reduce agricultural emissions, deforestation and protect biodiversity? How do we adapt management to build opportunities for co-benefits?

Agriculture is responsible for 14% of emissions. The level of emissions fluctuate but have decreased overall by 6.5% since 1990. This was mainly due to a decrease in emissions from enteric fermentation, which makes up approximately 60% of emissions from this sector. Other agricultural emission sources include nitrous oxide from soils and rice cultivation, and carbon dioxide from the application of lime and urea.

Vegetation clearing and other land use changes have been responsible for about 1% of emissions. Emissions from the LULUCF (land use, land use change and forestry) sector consistently dropped from 2000 but the annual rate recently doubled largely because of increasing land-clearing rates, particularly in Queensland. In the year to March 2017, this sector was reported to provide a net sink of -0.1% of the national inventory.

A transition pathway: Soil and livestock emissions are reduced through best practice farming techniques. This includes intensification of breeding, improvement in feeding and pasture practices, as well as enhanced breeding and herd selection. While growth in beef demand slows because of increases in beef prices, overall growth in demand for agricultural products sees emissions grow by 20% to 2050. Bioenergy for transport and industry could be sourced from second and third generation feedstocks without a significant impact on agricultural production. These feedstocks include agriculture and forest residues, wastes and energy crops, grasses, algae and coppice eucalyptus. After taking into account all feasible reductions in all sources of emissions some positive emissions will remain. There will be a need to compensate for these by sequestration. Australia has great potential to offset emissions by forestry sequestration. Large shifts in land use from agricultural land, in particular livestock grazing, could be profitable. Such plantings become significant after about 2030.

Participants agreed that agriculture is responsible for about the same as Australia's emissions from transport and that there are significant challenges ahead in reducing these emissions. Changes will have to be made on both the supply (livestock feed, for example) and demand (diet choice, food production) sides of Australia's agricultural sector. Such changes would also need to be made in the context of a growing population and its consequences for the agriculture industry. Major changes will be required to both farmer and consumer attitudes, while maintaining the economic viability of Australian farms.

Regulatory and policy settings, market signals and mechanisms and market access will all need to be in place, along with a realistic carbon price, enhanced research and development targeting and funding. Land will need to be allocated for carbon sequestration. Many participants agreed that current regulatory and policy settings create uncertainty and a lack of cohesion and that changes are needed to eliminate competing agendas and create long-term stability.

14%

Agriculture is responsible for 14% of emissions.

6.5%

Emissions have decreased overall by 6.5% since 1990.

1%

Vegetation clearing and other land use changes have been responsible for about 1% of emissions.

WORKSHOP C: KEY PRIORITIES FOR COLLABORATION

- Create an independent (business/industry) climate agency, mandate and roadmap
- Teach children to understand and value food production
- Educate business and make accountable for consumer knowledge
- Identify and fund/invest in groups already doing this
- Educate land owners about economic benefits
- Reward innovation
- Provide incentives for low emitters and upfront capital investment for transition from high emission, unsustainable operations on government managed land
- Create a sustainable agriculture fund

WORK SHOP D

RESOURCING THE CHANGE

CO-CHAIRS:
Peter Castellas, CEO, Carbon Market Institute
Emily Gerrard, Co-Head of Allens' Climate Change Program

FACILITATOR:
Warwick Peel, Chief Executive Officer, Startup Boardroom; UNAA Victoria Board Member

This group discussed how people, skills and markets can help achieve emissions reductions and the Paris Agreement commitments.

After two weak years, investment by the private and public sectors in clean energy increased by 50% in 2016. The availability of finance has been a limiting factor. Uncertainty in government policy has constrained investment. Major banks and the Clean Energy Finance Corporation are providing loans, while the Victorian Government and some banks have issued Green bonds. So far, the carbon market in Australia has been limited to arrangements under the Kyoto Protocol and the reverse auctions associated with the Emissions Reduction Fund. Trading in Renewable Energy Certificates contributes to the Renewable Energy Targets

A transition pathway: Many emission reduction opportunities, such as energy-efficiency improvements are already profitable. Implementing those opportunities now means less reduction in emissions are required in the future to meet the carbon budget thereby reducing the cost of action. Long-term signals ensure that investments in new assets are compatible with the long-term emissions reduction pathway. Investments in research and development helps fill the technology and knowledge gap as well as reducing the costs of low-carbon technologies. Supply chains to feed low-carbon technologies are built and local skills and capabilities are developed. Support is provided for the transition of current high-emission industries and regions.

Workshop participants discussed the need to build capacity for a low carbon future. To facilitate this happening, discussion centred on the need for national government policy leadership and direction; ethical investment; training of human capital and more opportunities for finance and funding of new ventures. And while the Paris Agreement was described as the brightest of all market signals, participants agreed that in Australia there is confusion, and some fatigue, about how to contribute to the conversation.

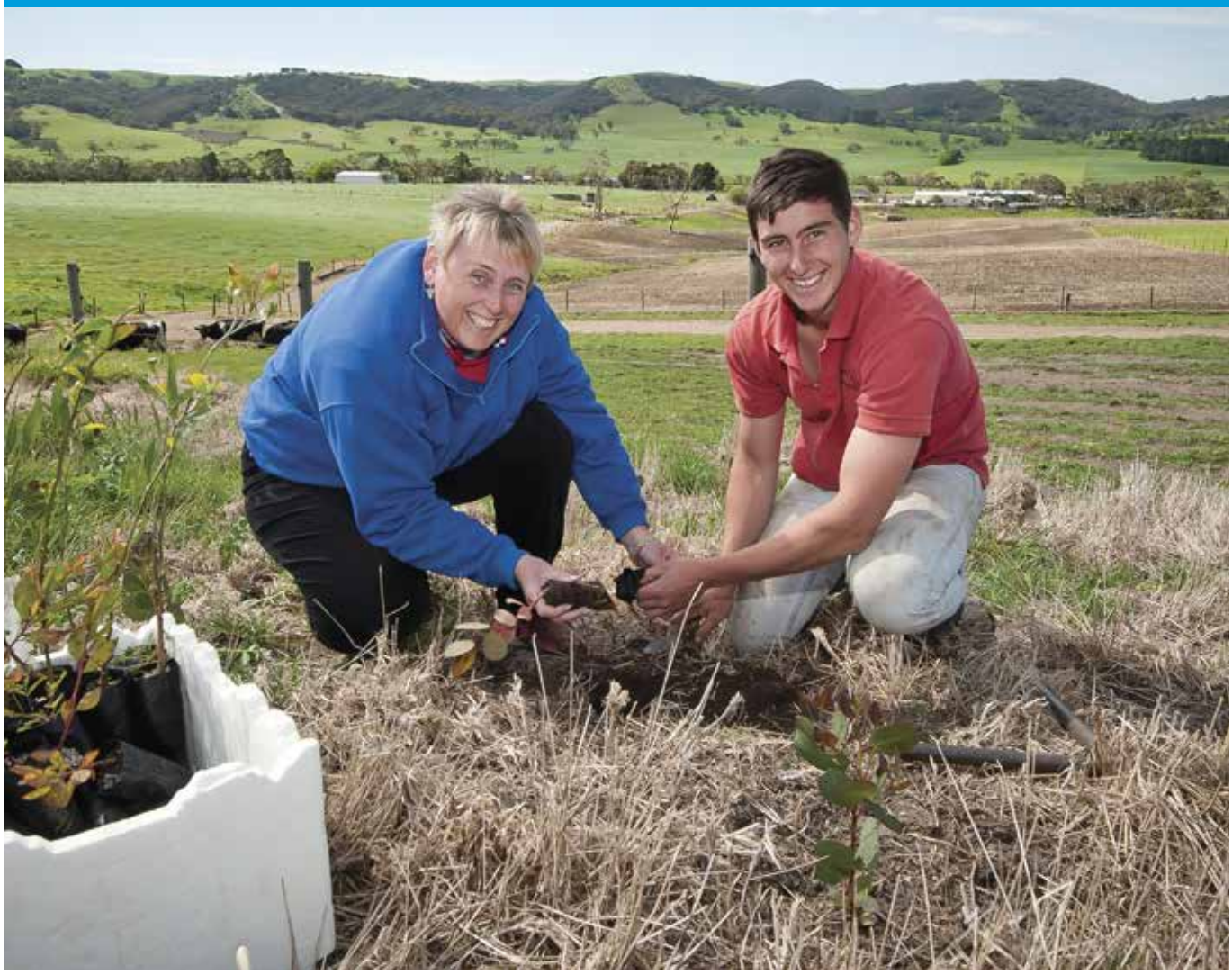
In relation to incentives versus regulations, a mix of tools are needed to help drive change but there must be genuine commercial drivers and recognition that there will be costs involved in removing emissions. There also needs to be an increase in knowledge about new technologies and their economic benefits. There needs to be quantity impacts in terms of responsible investments, with superannuation funds urged to actively ethically invest.

One of the biggest challenges identified by the group was the need to involve Australia's indigenous communities and to recognise them as a major resource and source of knowledge.

50% After two weak years, investment by the private and public sectors in clean energy increased by 50% in 2016.

WORKSHOP D: KEY PRIORITIES FOR COLLABORATION

- Build and continue to build international relationships
- Innovation – technology fixers and ideas to encourage change
- Markets – shifting knowledge from those who know to those who don't know. Markets help in capacity building, education, incentivising etc.
- Funding – ways to try to de-risk this new area. Need private money in addition to public money to help move risk.
- Balance - between ensuring dynamic regulatory space vs overkill of regulatory processes
- Working together
- Empower people to advocate and talk about the problem
- Need for educational institutions to step up and produce environmental graduates with economic understanding



WORK SHOP

E

MOBILISING THE COMMUNITY

CO-CHAIRS:
Dominique La Fontaine, Executive Officer, South East Councils Climate Change Alliance
Stan Krpan, CEO, Sustainability Victoria

FACILITATOR:
Imogen Jubb, Zero Carbon Communities Manager, Beyond Zero Emissions

This discussion looked at how we can best work together to enhance understanding; develop and maintain motivation; improve incentives; remove impediments and provide leadership.

All levels of government are involved in climate management, as are many non-government organisations, private corporations and individuals. Yet many individuals and organisations are still not engaged and those that are often operate in isolation from each other. The challenge remains to build on the current achievements and, recognising the urgency of the situation, engage all sectors of the community in nation-wide, inclusive action, as advocated in the UN Paris Climate Agreement.

A transition pathway: Action by all levels of government and by all organisations and individuals is encouraged and supported. The UN's common goal of net zero emissions helps unite these efforts and provides a common measure against which to report progress. The contribution of all sectors to emissions reduction is recognised and reported as a national achievement. Successful initiatives by local governments guide their adoption throughout the sector. State governments seek to align their targets and activities to create nation-wide programs. Private organisations extend their involvement to include comprehensive reporting and sector-wide collaboration. The Australian Government helps promote and support the nation-wide programs, other initiatives of national significance and collaboration with other countries and international organisations. (*Formulated for the UNAA as an example.)*

To mobilise Australia's communities, there needs to be more work done to educate people about what is meant by 'net zero' and what is actually being reduced and measured. People may have limited knowledge about climate change and the environment until they start to work or volunteer in this area. With little knowledge, what are the best ways of communication that will mobilise people?

Effective ways to communicate need to be developed and applied so that everyone in Australia knows what he or she needs to do to have an impact. Communications need to acknowledge, and respond to, the fact that different people will be motivated to get involved by different factors.

Participants agreed that Sustainability Victoria's *Take2* (http://www.sustainability.vic.gov.au/services-and-advice/community/take2) initiative was a good step in the right direction. The workshop also noted that consumers want businesses to be green but there needs to be compelling information to show that sustainable options are cheaper. Information about economic benefits and facts need to be presented in ways that will drive change.

Group members said important lessons had already been learnt from experiences of mobilising communities and these need to be incorporate into future planning, including being clear on governance arrangements from the outset and having realistic expectations of volunteers. Being flexible and transparent and ready to listen and share information was also important, along with the collection of data and regular internal evaluations.

WORKSHOP E: KEY PRIORITIES FOR COLLABORATION

- Use schools and universities to promote the benefits of a low carbon world
- Incentives – awards and funding for small local projects
- Leadership – champions and stories, promote heroes
- Understanding – sell the opportunities created by climate change
- Need to tell people exactly what to do; what action to take
- Need to share stories to see that change is a benefit and identify these benefits
- Provide leaders with tools to enable them to share successes
- Media strategy and tools to recognise good work more often
- Simple actions and make it easy
- Transparency – measurement and tools, benchmarking
- Promote other benefits – social, economic, health
- Encourage communities to get involved with climate change
- Victoria needs a community-council project/partnership
- Get businesses and communities working together

WORK SHOP

F

BUILDING STRONG CLIMATE CITIES

CO-CHAIRS:
Michael Nolan, Executive Director, UN Global Compact Cities Programme
Maree Grenfell, Resilient Melbourne Delivery Manager, City of Melbourne

FACILITATOR:
Dr Michael Henry, Managing Director, The Strategy Shop; UNAA Victoria President

We all need to play a role in creating resilience to climate change in our cities and regions. How can we work together to protect and promote community health, safety and amenity?

According to the UN Human Settlement Program, around 70% of greenhouse gas emissions come from cities. They include emissions from energy production for electricity, heating and transport and, are therefore, influenced by building design, manufacturing processes, transport characteristics and energy demand. Some come from wastes. Almost all of Australia's capital cities have targets for the reduction of emissions.

70% of greenhouse gas emissions come from cities.

A transition pathway: Looking at a city as a system provides the opportunity to take into account the interactions between its various elements. Emission reduction activities can thereby be related to climate adaptation and other aspects of sustainability. Land use planning can affect travel times and open space; transport management can minimise fuel demand; building regulations can improve energy efficiency; energy generation can maximise the use of clean fuels; biodiversity management and water management can help conserve energy. (*Formulated for the UNAA as an example.)*

Participants discussed the fundamental role of water in urban landscapes and agreed that shedding water reduces urban resilience. Future developments must use water better in landscapes and we must stop building in the wrong places. Greater imagination is needed in developing clever solutions to the challenges thrown up by population growth and resulting increase in urbanisation; natural disasters and health related disasters. Vulnerable communities need to be protected.

While the group acknowledged that governance of cities is difficult in terms of climate impact on water and open spaces, there needs to a stronger legislative approach, increased financial resources and clarity on who is responsible and accountable. To date, they said, there has been a lack of collaboration across metropolitan areas and insufficient long-term planning.

WORKSHOP F: KEY PRIORITIES FOR COLLABORATION

- Local government should be the key leader in this area, but multi-partner collaboration will need to drive all future planning and implementation
- Councils, water authorities, transport agencies, property developers, home owners, private sector asset owners, state governments, communities, including Indigenous communities, need to be able to develop common goals and promote different styles of leadership
- Case studies of successful integration should be widely promoted, particularly as a tool to educate future generations
- A new national framework is needed and states and cities should jointly determine the roles of all sectors of government.

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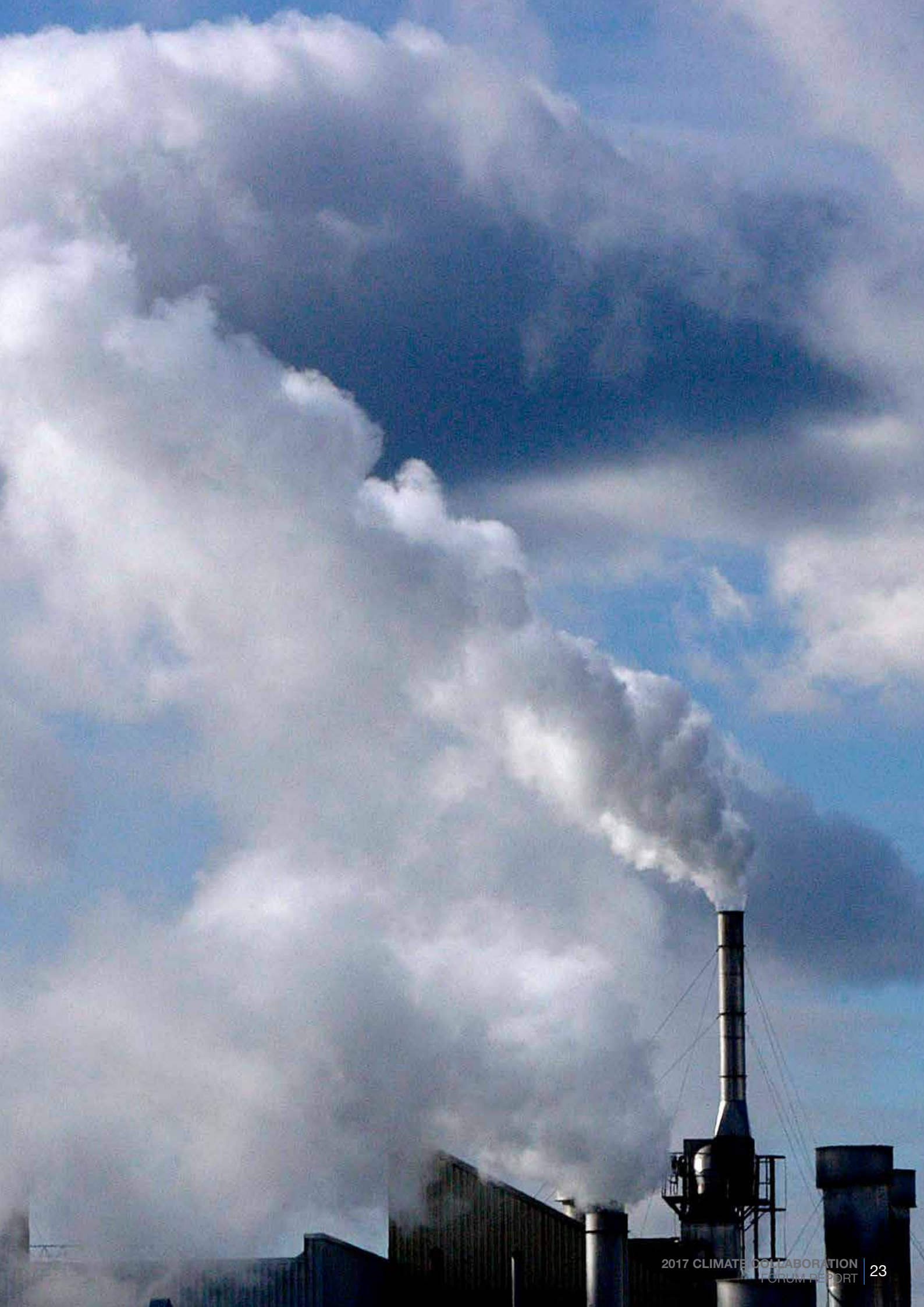
APPENDIX

> CLIMATE COLLABORATION FORUM PARTICIPANT ORGANISATIONS

- Alternative Technology Association (ATA)
- Arup Pty Ltd
- ACCSR
- Australian Institute of Energy
- ANZ
- Barwon Water
- bhive Group
- Biofilta
- Carbon Famers of Australia
- Carbon Reduction Institute
- Central Coast Board
- Charles Sturt University
- City of Fremantle
- City of Greater Geelong
- City of Melbourne
- City of Port Phillip
- City of Yarra
- ClearSky Solar Investments
- Climate Change Research Centre
- Climate and Health Alliance
- ClimateWorks Australia
- CPSU Victoria
- Crystal Lagoons
- Currie Communications
- Cushmore Wakefield
- Dairy Australia
- Deakin University
- Department of Environment, Land, Water and Planning (DELWP)
- Earth Sanctuary World Nature Centre
- Earthwatch Institute
- East Gippsland Shire Council
- Ecolinc Science and Technology Innovations Centre
- Energy for the People
- Environment Protection Authority (EPA) Victoria)
- Fun over Fifty
- Future Ready
- Habla Zig-Zag International Pty Ltd
- Hold Green
- Impact Investment Group
- Inner West Council
- ICLEI Oceania – Local Governments for Sustainability
- KPMG
- Ku-ring-gai Council
- Level Crossing Removal Authority
- Maribyrnong City Council
- Melton City Council
- Monash Energy Transformation Program
- Monash University
- Moreland City Council
- National Australia Bank (NAB)
- National Climate Change Adaptation Research Facility
- Office of the Commissioner for Environmental Sustainability
- Point Advisory
- Port of Melbourne
- Powerlink Queensland
- Powershop Australia
- Simble Energy
- SimplyCarbon
- Sustainability Victoria
- Talaheni Farm
- Torres Strait Regional Authority
- Transurban
- United Nations Association Australia
- University of Melbourne
- University of the Sunshine Coast
- University of Sydney



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