City of Canning

A welcoming and thriving city

Climate Change in Western Australia – Issues Paper September 2019

City of Canning Submission

Introduction

The City of Canning thanks the Department of Water and Environmental Regulation for the opportunity to provide input in response to the *Climate Change in Western Australia Issue Paper* (Issues Paper) as part of the Government's development of the State Climate Change Policy. This paper represents a response from the Administration of the City of Canning (the City), however does not reflect the views of Council. This response expands on the support already provided for the WALGA submission.

Climate change will impact significantly on Local Government policy and operations, and poses a number of opportunities and risks. This submission raises a number of current issues specific to the City of Canning, and also addresses some of the wider local government sector risks and opportunities that have not been addressed significantly within the Issues Paper.

The City is committed to striving for leadership in sustainability at a local, national and international level. The City aspires to go beyond best practice and look towards becoming a sustaining organisation for the community and an inspiration for the Western Australian Local Government sector.

Climate change has been recognised as a key issue for operations and service provision for the City. Consequently, the City has been active in embedding mitigation and adaptation actions into policy, strategy, operations and risk management frameworks, and facilitating community learning programs to enhance awareness within the community for a number of years.

The City participates in a number of collaborative projects and partnerships to better understand the impacts of climate change, including Cities for Climate Protection, Cities Power Partnership and the Water Sensitive Transition Network. This approach is consistent with the principles of sustainability and intergenerational equity identified in the *Local Government Act 1995*.

The City has recently adopted a Sustainability Policy which includes eight policy principles that commit the City to addressing climate change both at a policy and practical level, and to acknowledging and addressing the risks posed by climate change to current and future Canning communities. The policy can be accessed here: https://www.canning.wa.gov.au/about-us/our-future/sustainability/innovation-and-leadership

The City of Canning currently employs two NCCARF (National Climate Change Adaptation Research Facility) Fellows, with specialist expertise in climate change adaptation, risk and science/policy communication; and has consulted a number of internal subject matter experts across sustainability, risk and liability, energy and infrastructure, economics and water policy fields whose input has been considered in this response.

This paper goes into some detail in responding to the questions outlined in the Issues Paper that pertain to local government, however key recommendations from the City of Canning are outlined in brief overleaf:

- Provide energy policy certainty at a State level, in particular with regard to clear and ambitious emissions and renewable energy targets.
- Address regulatory impediments to new large scale energy projects and network contractual arrangements preventing grid access.
- Address emissions being treated as an externality, in particular by major, resource-intensive projects.
- Support for investment into local government small to medium scale distributed renewable energy projects.
- Advocate for the removal of subsidies from fossil fuel industries.
- Accelerate decommissioning of fossil fuel energy generators and articulate a phase-out plan for transitioning the industry towards renewable energy generation.
- Apply an appropriate carbon pricing mechanism to all energy sector and resources projects.
- Provide incentives for decarbonisation of resource-intensive, trade-exposed industries.
- Strengthen and support the Environmental Protection Authority (EPA) in applying strong, enforceable approvals conditions based on projected climate change impacts for proposed projects.
- Treat LNG as a fossil fuel and articulate a rapid phase-out plan.
- Address perverse incentives in taxation schemes applied to electric vehicles (EVs).
- Facilitate rapid uptake of EVs through government supported procurement schemes, rebates and incentives and expansion of the fast charging network.
- Ensure that transition to EVs (or other disruptive technologies) does not create unforseen waste management issues and articulate a circular economy plan for redundant products and infrastructure.
- Direct investment into rapid public transport and active transport infrastructure and support local governments to facilitate a fast-tracked move away from fossil fuel dependency.
- Address barriers in existing legislation (i.e. *Local Government Act* in relation to Building Upgrade Finance) and ensure the policy supports enabling mechanisms outlined in current State strategy such as the Waste Strategy (circular economy) and Water Sensitive Transition.
- Acknowledge and address non-coastal climate change risks and impacts (adaptation) and fund appropriate mitigation strategies.
- Address market-based barriers around development, land-use and the built environment (through appropriate legislation and strengthened enforcement of building codes) to unlock potential for local government to support climate resilient development.
- Develop a State-wide plan for biodiversity conservation that acknowledges climate risk and meets the outcomes of the policy.
- Clearly articulate roles and responsibilities across the three spheres of government in the climate change adaptation space to provide certainty to local government, particularly in relation to risks, liability and insurability.
- Explore opportunities for regionally aggregated urban forestry projects to provide access to voluntary offsets for business and industry.

- Support the reinstatement of a dedicated and adequately resourced Department of Climate Change and Minister within the State Government.

Detailed responses to questions raised in the Issues Paper.

1. Transforming Energy Generation

1.1 What are the main challenges for decarbonising Western Australia's Electricity Supply while ensuring adequate generation capacity, security and reliability?

Key barriers for decarbonising Western Australia's electricity supply, while ensuring generation capacity, security and reliability are:

- Absence of energy policy certainty at a state and national level, in particular with regard to clear and ambitious renewable energy targets;
- Current monopoly on non-contestable energy for smaller consuming sites;
- Regulatory impediments to new large scale energy projects;
- Network contractual arrangements preventing grid access; and
- Emissions being treated as an externality and not factored into energy costs, encouraging a business-as-usual approach to the sector and a lack of understanding around 'total' energy impacts.

The City of Canning provided feedback on four energy transformation scenarios presented to stakeholders by the State's Energy Transformation Unit / Department of Treasury in July 2019.

This feedback specifically raised issues around the drivers of these scenarios, all four of which appeared largely economic, with incidental decarbonisation as an outcome of industry driven system shift, rather than modelling a proactive policy led move to a zero emissions energy future. This lack of intervention from government, or willingness to acknowledge the climate crisis as a driver for energy planning presents a significant barrier to achieving a low carbon future.

1.2 What are the most effective ways to overcome these challenges by 2030?

The Clean Energy Council notes that the deployment of renewable energy has proven to be the 'most significant contributor to Australia's carbon abatement effort '.

To support continued investment in the large scale renewable and emerging sustainable technology sector, industry and local government need policy certainty. As the Western Australian grid is separate to the national grid, the role of the State Government in delivering forward thinking energy policy is key to driving investment in the market to secure a sustainable energy future for Western Australia. A strategic energy and emissions policy would facilitate a strategic roll out of large scale and distributed energy projects to support capacity, security and reliability.

Recent modelling by *Laslett et al* found that 'it is possible to supply 100% of the electrical demand of the SWIS… on an hour by hour basis using a combination of energy efficiency measures, residential and commercial rooftop photovoltaic systems, solar thermal power stations with heat storage, wind power and distributed battery storage systems'[1].

The technologies are available, being widely applied across the globe, are cost competitive with construction of fossil fuel energy generation infrastructure, and provide numerous additional economic benefits[2]. However, lack of policy certainty and changing regulations are inhibiting investor confidence in large scale renewable energy investment[3].

Given the capacity of energy storage to provide frequency stability and inertia mimicking[4] as a result of rapid response rate, investment to enable the accelerated uptake of battery systems for industry and government use, as well as across the community, should be supported. The Hornsdale Power Reserve Battery Energy Storage System (South Australia) has demonstrated the capacity of such systems to provide effective and rapid 'frequency control ancillary services' much faster than traditional systems. A second battery system is being constructed in Port Augusta. These projects demonstrate that there is both appetite for, and successful application of these systems, and that their deployment could facilitate a faster transition to a renewable energy future.

Distributed energy solutions will play a critical role in empowering energy customers and support a more resilient and distributed energy system that can deliver lower prices and increased reliability[5]. Addressing current contractual constraints as a major issue for the energy sector is paramount. Large, established generators have a contractual right to bulk network capacity, even if they do not use it all[6]. This locks other players out of the market. Addressing market mechanisms to facilitate the efficient use of and equitable access to the network will support the suite of energy generation options essential to a sustainable Western Australian energy future. Increased competition will result in cost efficiency and choice for the consumer, and consequently market forces will put pressure on generators to provide safe, secure, efficient and environmentally responsible options in order to win customer favour.

Appetite for direct procurement of clean energy supply is on the rise[7] with local governments across Australia and Western Australia investigating opportunities to

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[1] Dean Laslett, Craig Carter, Chris Creagh, Phillip Jennings. "A large-scale renewable electricity supply system by 2030: Solar, wind, energy efficiency, storage and inertia for the South West Interconnected System (SWIS) in Western Australia' (2017) 113 *Renewable* Energy713. p 274.
[2] B.V. Mathiesen, H. Lund, K. Karlsson, 100% Renewable energy systems, climate mitigation and economic growth, Appl. Energy 88 (2011) 488e501, http:// dx.doi.org/10.1016/j.apenergy.2010.03.001
[3] Clean Energy Council, '*Australia's Energy Generation Outlook*' 11 September 2019
[4] Dean Laslett, Craig Carter, Chris Creagh, Phillip Jennings. "A large-scale renewable electricity supply system by 2030: Solar, wind, energy efficiency, storage and intertia for the South West Interconnected System (SWISS) in Western Australia' (2017) 113 *Renewable* Energy713. p 715.
[5] Clean Energy Council, '*Australia's Energy Generation Outlook*' 11 September 2019
[6] Department of Treasury (2019) *Energy Transformation Strategy: a brighter energy future*. Government of Western Australia, p8.
[7] Clean Energy Council, '*Australia's Energy Generation Outlook*' 11 September 2019

invest in medium to large scale renewable energy systems to offset emissions and manage the risk of future energy cost increases. Currently, the inability to capture avoided network costs for exporting power to the electricity network is a major barrier[8]. This results in medium to large 'in front of the meter' renewable energy projects requiring a competitive power purchase agreement to make the project viable, and a level of expertise and skills beyond what is usually available to local governments. As a result, local governments who wish to invest in this area to reduce energy costs and make a commitment to reducing emissions often incur high consultancy costs and must rely heavily on external expertise.

Regulatory reform to support local government investment in renewable energy projects is needed and more accessible funding channels would be of value. More investment at a Federal level into the significant opportunities for large scale renewable energy projects in Western Australia will be vital to enabling local government facilitation of this transition and should be part of a State advocacy strategy. While recently announced infrastructure funding, designed to stimulate the economy, has already been allocated to existing or proposed major projects in Western Australia, there should be a specific allocation earmarked for renewable energy and sustainable infrastructure and industry solutions.

Finally, removal of major subsidies to fossil fuel energy generators, and to fossil fuel mining companies, coupled with an appropriate carbon pricing mechanism would accelerate price parity between fossil and renewable energy, see market forces accelerate the natural decline of inefficient, polluting industries, and increase the viability and competitiveness of the renewables industry. However immediate policy commitment to phasing out existing fossil fuel generation, and to declining proposals/approvals for new fossil fuel generation will also be required to facilitate this transformation. This will require commitment to training and development for those in exposed industries.

1.3 Should the electricity sector make a pro-rata (or greater) contribution to Australia's national greenhouse gas emission targets?

The electricity sector is best placed to make a significant and rapid impact on Western Australia's emissions footprint. South Australia has demonstrated that renewable energy and battery storage technology can contribute base load power while significantly reducing the carbon footprint.

To facilitate innovation in the energy sector, the transition to zero carbon should occur at a greater rate than its pro rata contribution to greenhouse gas reductions, however it should be noted that this should not result in significant costs being passed on to households.

The Australian Capital Territory *Energy Efficiency (Cost of Living) Improvement Act* provides a working example of how energy sector emissions targets can be implemented. The Act legislates emissions reduction targets for electricity and gas

[8] F Mey, M Diesendorf, I MacGill, 'Can local government play a greater role for community renewable energy? A case study from Australia, (2016) 21 *Energy Research & Social Science* 33-43. p38

providers which are set on a pro-rata basis in relation to retail electricity market share with penalties for failure to achieve targets. The Act also requires money raised as a result of the scheme be reinvested into projects/programs that meet the objectives of the scheme and ensures that only a portion of the costs are passed on to consumers.

1.4 How fast do you think the transition of the electricity sector should occur?

The costs of running fossil fuel power stations are increasing as infrastructure ages, and reliability is reduced[9]. Globally fossil fuel reserves are projected to be depleted by 2050 (oil & gas) and 2110 (coal)[10]. Given the lead time to design and commission new energy infrastructure, there is a level of urgency to design and commission alternative energy solutions.

This transition should be occurring now. Western Australia needs to make a rapid transition to decarbonising the local economy in order to meet its Paris Agreement targets. South Australia has demonstrated that government support for large scale renewable energy and battery systems can provide a state with a reliable, cost effective, low carbon electricity network that is capable of meeting residential and industry needs. The State has asserted that it will not wait for Federal action in this space. The City agrees with this policy and recommends a State / Local Government / Industry think tank be established to facilitate active collaboration and rapid transition.

The City of Canning has acknowledged that climate change is an immediate threat, and an area of responsibility for local government within policy and risk management frameworks. Recent research suggests that within 12-20 years irreversible environmental damage will occur if immediate action on climate change is not taken by government and industry. In essence, a transition to a zero net carbon economy must happen by 2050 if catastrophic climate change is to be avoided. As an intergenerational equity issue, given Australia's current poor performance in emissions reduction, and our high per capita carbon footprint, the transition of the energy sector must be rapid. As the energy sector is one of the most environmentally impactful industries, a government facilitated transition to 70% renewable energy by 2030 and 100% renewable energy by 2045 would not be unreasonable.

2. Industry Innovation

2.1 What measures have been implemented by your business to lower energy use or emissions?

The City has recently adopted a revised Sustainability Policy to provide direction and drive future sustainability initiatives. This includes commitments to responsible resource use, intergenerational equity, precautionary principle and climate resilient development.

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[9] Clean Energy Council, '*Australia's Energy Generation Outlook*' 11 September 2019

[10] Musa, S.D., Zhonghua, T., Ibrahim, A.O., Habib, M., 2018. China's energy status: a critical look at fossil and renewable options. Renew. Sustain. Energy Rev. 81, 2281 - 2290.

The City has implemented a number of energy efficiency and renewable energy projects for Council facilities, is working towards improving the energy efficiency of street lighting and is also investigating a large scale renewable energy installation on a decommissioned landfill site to offset organisational emissions and achieve a 100% renewable energy target for Council operations. Energy efficiency and renewable energy projects are underpinned by energy and water audits to identify the best opportunities for investment in renewable energy. The City also commits to a number of adaptation initiatives and interventions through its Climate Change Action Plan.

For more information please visit: https://www.canning.wa.gov.au/about-us/our-future/sustainability/carbon-reduction-and-energy-transformation

The City supports community groups (via sustainability grants) to reduce energy consumption in community facilities and provides a range of community education programs at the Canning River Eco Education Centre.

The City is also active in knowledge sharing and advocacy, including participation in the Cities Power Partnership, previous participation in the Cities for Climate Protection Program and is a signatory to the Western Australian Local Government Association Climate Change Declaration alongside 40 Western Australian Councils, representing 65% of the Western Australian population.

2.2 What are the barriers to decoupling energy use and emissions in the resources sector?

Western Australia is the only Australian state with rising greenhouse gas emissions, largely due to the expansion of Liquefied Natural Gas (LNG) production and export. It is also the only state or territory besides New South Wales without an emissions reduction target or renewable energy target. The current aspirational net zero emissions target for major projects, which has not been widely applied, lags behind the rest of the country in actively reducing emissions and transitioning to a low-carbon economy.

The absence of a carbon pricing mechanism allows greenhouse gas emissions to be treated as an externality rather than as a cost of doing business. This provides no incentive to business in any sector to reduce emissions or invest in renewable energy programs.

Emissions production should be considered consequential and factored into all transactions across the resources sector. In developing an appropriate pricing mechanism, major emitters who might ordinarily pay to offset their emissions, resulting in perverse outcomes and transference of responsibility and accountability; might instead consider investing in alternative technologies to reduce or avoid them entirely, which is the preferred outcome.

For the resources sector in particular, which is highly trade exposed, a pricing mechanism, coupled with incentives to innovate should be designed to replace the major subsidies many of these major industry players receive.

2.3 Have you assessed the implications of the low-carbon transition for your business or sector? How are these risks disclosed to stakeholders?

Risk management is an essential responsibility of local government and is included in project management processes. Within the City of Canning, information is communicated to ratepayers via reports to Council which are publicly available. Major projects are subject to public engagement processes wherein both the project purpose and risks are communicated. Climate Change risks are captured in the city's strategic and operational risk profiles.

2.4 How can the government of Western Australia foster clean industries and technologies?

The State should develop and communicate robust emissions targets to support the uptake of innovative low emissions technology. Emissions targets should be tied to development and other approvals and licencing with a robust inspection and regulatory regime to ensure compliance. The EPA should be strengthened and its approvals recommendations should be heeded in this space.

The need to move away from a model where industry drives energy policy is urgent. The impact of industry emissions and the legacy of degraded environments are costs that are '*generally not born directly by emitters and in fact appear to be more frequently and intensely born by those receiving little benefit from emission-generating activity*[11].

Growth in industry and economy should not occur at the expense of sustainability, and developments should be required to consider and disclose full project costs (including consideration of externalities such as emissions and environmental impact costs). Given the current Parliamentary debate in NSW around removing these provisions from coal mine approvals and other such major projects it is imperative that political action is taken to ensure that Western Australia does not take the same approach.

It must also be noted that LNG extraction and export, while a major contributor to Western Australia's economy, is not a renewable fuel source, and should be addressed in the context of rapid phase out, not 'cleaner production' or 'transition fuel'. The State's Climate Change Policy, Strategy and Action Plan should focus on investing in business and industry that can fully decarbonise the State, not those that maintain fossil fuel dominance. It is noted that recent approvals for new gas projects are likely to increase, not decrease Western Australia's emissions, which is inconsistent with the articulated aim of this policy.

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[11] Bruce Coffyn Mitchell and Jayajit Chakraborty, "Urban Heat and Climate Justice: A Landscape of Thermal Inequity in Pinellas County, Florida" (2014) 104 *Geographical Review* 459; Jean Hillier et al, "Climate Justice in the Australian City" (Paper presented at the State of Australian Cities National Conference, Sydney, 25 November 2013); Margaret Loughnan et al, *A Spatial Vulnerability Analysis of Urban Populations during Extreme Heat Events in Australian Capital Cities* (National Climate Change Adaptation Research Facility and Monash University, 2013); Marie Lynn Miranda et al, "The Environmental Justice Dimensions of Climate Change" (2011) 4 *Environmental Justice* 17 cited in Katy Milne and Paul Latimer, 'The Market Model for Carbon Reduction: Planning for Success Post-Paris'. (2018) 35 *Environmental Planning and Law Journal* 142. P 143.

Rather than investing in fossil fuel industries, the government should be pursuing an aggressive investment strategy in renewable hydrogen production and export. With the Asian market, in particular Japan and South Korea, investing heavily in hydrogen infrastructure and requiring fuel import, Western Australia could create a strong market position and new employment opportunities, particularly through accelerating projects such as the Pilbara Green Hydrogen Project and others.

There are numerous new 'start-up' ventures focussed on moving towards a zero carbon, circular economy in Western Australia. The start-up economy is growing rapidly in the Eastern States and overseas in this space, and yet Western Australia lags in its investment in innovation in alternative technologies and energy opportunities, and in its investment in demand side management and efficiency. Providing significant funding to the innovation and enterprise community, and supporting collaborative, cross-organisational design processes to develop solutions to shared problems will be key to enabling rapid transition away from fossil fuel dependence.

3. Future mobility

'*Transport is Australia's third-largest sector by emissions, and the nation's second fastest growing source of greenhouse gas emissions*[12]*'* The National Energy Emissions Audit (September 2017) found that Australia was the only member of the United Nations Framework Convention on Climate Change group of developed countries other than Turkey in which energy combustion emissions were at their highest since 1990, with no policy in place to slow emissions from petroleum fuels and was '*absolutely not on track to achieve its Paris emissions reduction target*[13]*'.*

In the absence of appetite for proactive policy at a Federal level, there is significant opportunity for WA to develop measures to support low emissions vehicles and alterative transport opportunities to support future mobility. The demise of the traditional vehicle manufacturing industry in Australia presents an opportunity to develop new industries in electric vehicle manufacturing and retrofitting, which could be supported by policy and incentives.

For more information on the City's transport strategies and actions see: https://www.canning.wa.gov.au/about-us/our-future/sustainability/sustainable-transport

3.1 What are the barriers to purchasing a low-emissions vehicle for your household or business?

[12] Anna Mortimore, Hope Ashiabor, 'Australian Government's Ongoing Challenge of Achieve Fuel Efficiency Standards by 2025 Can Impact on 2015 Paris Agreement. (2018) 35 Environment and Planning Law Journal 280 p. 281

[13] Hugh Saddler, National Energy Emissions Audit September 2017 (The Australia Institute, 2017), p 3.

The additional upfront cost of low emissions vehicles remains the biggest barrier to adoption at both an organisational and individual level. Access to and cost of installation of fast charging infrastructure is also a barrier for local governments.

3.2 What can be done to facilitate the uptake of electric and other low-emission vehicles in Western Australia?

3.2.1 Taxes, Rebates and Incentives

By 2035 it is anticipated that 50% of all vehicle sales will be electric, influenced by the rising cost of fuel and concerns over greenhouse gas emissions and other pollutants.

The City of Canning has incorporated two electric vehicles into its fleet and recommends the State Government develop an incentivised EV purchasing/leasing model that is attractive for local government fleet managers and equalises leasing costs against internal combustion engine (ICE) vehicles. Additional access to EVs in salary sacrificed novated leasing options for Council staff could be encouraged, and incentives for uptake applied.

It is noted that globally, sales of EVs are still largely driven by policy support and incentives with 95 per cent of EV sales occurring in just ten countries with robust EV policies. In the United States, Japan, Canada, Norway, the United Kingdom, France, Germany, The Netherlands and Sweden, incentives (or penalties) work by reducing the relative cost of EVs compared to ICE vehicles, and by improving the number and geographic spread of charging stations. As with renewable energy technologies, price parity is a key driver for accelerated transition.

State and territory based annual vehicle registration fees and stamp duty payable on new EVs should be reduced or removed as they form a barrier to EV ownership. The ACT Government currently offers zero stamp-duty on new zero emissions vehicles and a 20% discount on registration fees which could create an 'at purchase' incentive to transition.

There are four Federal taxes that apply motor vehicles sales including EVs: the goods and services tax; luxury car tax; fringe benefits tax and import duties. Substantial upfront taxes impede uptake of EVs as a mass market option and amendments to these (reductions / concessions or abolition), could support EV uptake. New Zealand is currently applying tax concessions until EVs reach 2%. The abolition or temporary waiver of luxury car tax, GST and import duties on EVs would reduce up front disincentives.

For local government, changes to FBT treatment for EVs could also be a major enabler for greater uptake. Typically a higher rate of FBT is payable by a business or individual on an EV simply because of the higher purchase price. The removal of FBT on EVs would result in no disadvantage from a vehicle cost to business perspective but would help to mitigate the higher cost of these vehicles.

Additionally, FBT linked incentives might be applied. Currently ICE vehicle drivers are able to claim deductions against Fringe Benefits Tax for fuel. Electricity is not currently

defined as a fuel for the purposes of FBT, nor are EV-owners able to claim equipment used to charge for their EVs, such as solar panels, home batteries, and charging equipment. This could be addressed by the ATO directly, through guidance on an accepted method of assessing this electricity cost and through State based rebates and incentives.

With regards to salary sacrificed vehicles, current FBT legislation encourages ICE vehicle drivers to meet a minimum kilometre standard, which may encourage unnecessary emissions generation in order to meet tax thresholds and claim deductions. This should be addressed as a perverse incentive.

A number of countries have adopted one-off cash payments (rebates) to encourage people to purchase EVs. A purchase rebate could help to reduce the price premium on moderately affordable EVs (such as Nissan Leaf, Renault Zoe or Hyundai Ioniq); kickstart the local market; encourage broader import of EVs into Australia and encourage a wider roll-out of charging infrastructure. As EVs can be up to twice the price of their petrol equivalent by size, providing a rebate to bridge this gap until the market reaches price parity would be of value.

3.3 How can we further encourage the use of public transport and active transport, such as walking and cycling?

3.3.1 On-Road Public Transport Fleet

The State should set realistic but ambitious targets for its bus/public transport fleet and transition to renewable electric or hydrogen fuel cell technology to provide for lower operating costs, with cost efficiencies passed on to consumers. Current public transport cost barriers for low income and outer suburb households might be addressed through this mechanism. Public transport should be prioritised during peak hour with high frequency bus lanes on key arterial roads.

Specifically supporting car share models through policy and infrastructure provision could support alternatives to individual car ownership, increasing the mode share of public transport while providing vehicle access when required. Local government negotiations with car share operators have to date indicated that the WA market is too immature, and the state too car dependent to support new market entrants. Smaller car share providers, and 'peer-to-peer' car share (such as Car Next Door) have recently entered the WA market, but require proactive support to enable them to scale rapidly enough to displace individual car ownership.

3.3.2 Rail Transport

Investment in rail should be expanded to extend the Thornlie and Forrestfield lines to provide circular rail access, and extend further north of the river. Ensuring better connectivity with outer-suburbs through expansion of existing lines, and intersectional light rail options would drive better mode choices for consumers and fuel consumption, while also addressing fuel poverty issues for low income households. The number of carriages operating in peak hour should be increased to facilitate multi-modal transport options, including bikes on trains in peak times.

3.3.3 Shared Use Infrastructure Incentives

Significant funding and policy support is required for walking and cycling planning and infrastructure to support increased and connected active transport and ensure that appropriate infrastructure is a requirement of new development. This should include shared use paths and/or separated bike lanes on key transport routes, increased shading, access to cycle repair stations and route signage/way-finding to indicate distance, water points, services etc. It should also consider cross-regional routes and support local governments to collaborate on major projects in this space.

Reducing car dependence through active transport options could be further enhanced though the implementation of a Transperth Bike/eBike Fleet 'tag on and tag off' Smartrider system, allowing people to use a bicycle when convenient and to connect with other forms of transport, but reducing instances of abandonment or vandalism (as experienced in other jurisdictions) by attaching use to a personal Smartrider and account.

3.4 How can we ensure that Western Australia isn't left behind in the transition to cleaner transportation?

3.4.1 A State Responsibility

A national EV target would provide a powerful platform to drive coordinated, whole-of-government policy initiatives. Failing successful advocacy for proactivity at a Federal level; a State target, matched by action through government procurement channels could lead the way towards a cleaner transportation transition. Targets for EV manufacture and sales, replacement/reduction in conventional vehicles or fossil fuels, and EV parking spaces or charging stations are common forms of target-based policy and should be considered. As part of a holistic climate mitigation strategy, setting ambitious fuel reduction targets and managing and monitoring progress is paramount.

Globally, there are many examples where targets are being employed; countries that adopt targets largely have higher EV uptake than those without. The Chinese government has a target of 5 million EVs on the road by 2020. The New Zealand EV Programme is targeting 64 000 EVs by 2021, and the United Kingdom's Road to Zero Strategy is targeting new EV purchasing to constitute 50–70 per cent of the market by 2030 and 100 per cent by 2040. The Netherlands also has a national target for electric buses of 680 by the end of 2019. Some countries, such as The Netherlands, Norway, India, China, France, Germany and the UK have nominated dates for the phase-out of conventional vehicles.

A State (and local) government fleet EV target would provide scale, encouraging import, and potentially creating a second-hand market for depreciated EVs that would provide a cost effective avenue for private ownership. Governments should adopt a 'buy electric first' approach which states that when a comparable electric model is available, it will be the preferred purchasing option—to the exclusion of petrol, gas and diesel alternatives. The ACT government has already committed to similar standards so this would not be an isolated approach.

3.4.2 Creative Innovation for a Circular Economy in the EV sector

Rapid transition to EV's will result in the unintended consequence of a large number of obsolete vehicles and parts requiring disposal, contributing to waste and contamination issues. It will also require people skilled in EV servicing and maintenance. Retrofitting existing petrol vehicle stock would mitigate existing ICE vehicles becoming a waste stream and retaining the embodied energy used to manufacture them, while facilitating the transition away from fossil fuel use. Providing incentives and partnering with local companies in the electric vehicle space would support the development of new industries to retrofit and build new electric vehicles in the state, and potentially provide lower cost repurposed EV options into the market for those not able to afford new. The City of Canning is currently designing a localised project to address this issue and would appreciate State support to scale this project for maximum sustainability benefit.

3.4.3 Autonomous Vehicles

Autonomous vehicles (AVs) will be a major component of the Western Australian vehicle fleet and should be considered in the context of future mobility.

Conservative estimates based on expenditure on new vehicle sales, combined with the adoption rates for new vehicle technology indicate that autonomous vehicles will account for 20% of the vehicle market by 2045 and achieve 100% sometime between 2048 and 2057[14].

In recognition of the rapid development and potential for early adoption of advanced autonomous vehicle technology, in 2016, Australia's Transport Ministers directed the National Transport Commission (NTC) to develop a phased program of reform to facilitate the operation of autonomous vehicles in Australia by 2020. To this end, NTC has been consulting on matters including proposed regulation (what vehicles should be regulated, when regulation should apply and what aspects of AV technology need consideration), access to data, insurance and safety.

Autonomous vehicles are expected to be more fuel efficient and contribute to a reduction in vehicle emissions and should therefore be considered as another tool for low carbon transition. However, the National Transport Commission has identified '716 laws, rules and regulations' that will require review to enable fully AVs to operate on Australian roads and will require road line markings, street and regulatory signs to be of a high standard and precisely located with relation to the road.

Undertaking an audit of Local Government road infrastructure and managing upgrades to support autonomous vehicles will require clear guidelines. If responsibility for this transition, and the costs of required upgrades are to be partly shifted to local government through their management and maintenance of local roads and infrastructure, this must be addressed at a Federal and State level and clearly

[14] Roads Australia, 'Connected and Autonomous Vehicles' (Research paper, 2016), available at http://www.roads.org.au/Portals/3/RA%20Connected%20and%20Autonomous%20Vehicles%20-%20Research%20and%20Insight%20report%20final....pdf?ver=2016-12-15-111013-500.

communicated, particularly with respect to grants and support to be made available to facilitate.

3.4.4 Provision Enabling Infrastructure

Provision for significant funding to enhance EV fast charging infrastructure and increase the existing network to facilitate broader cross-country mobility would enable more local governments to transition their fleets to EV. Requiring all existing and proposed petrol stations to provide fast chargers in addition to petrol and diesel bowsers by 2025 could also facilitate uptake.

Partnering with local companies in the EV space to kick-start local manufacturing of electric vehicles could not only support a transition away from fossil fuel dependence, but also support the creation of new local jobs and industry. An example would be partnering with ACE-EV to set up a manufacturing facility in Perth and produce vans and utes for the local market as is happening in South Australia.

This concept is currently being explored through the City of Canning's Intelligent Logistics Areas project, which is seeking to future-proof the City's two key industrial estates of Canning Vale and Welshpool. Recognizing the City's key strategic location in WA's supply chain for both import and export cargo, the City has engaged with inner metropolitan and regional local governments to assess the viability of developing an inland hub that can facilitate the adoption of alternatively fuelled vehicles. In line with the hub and spoke model prevalent in supply chain management, it is envisaged that future 'spoke' sites throughout WA can be identified that would to feed into the hub. The City is also exploring options to facilitate access to an existing freight rail line that runs through the hub, which will further enhance the efficiency and sustainability of the proposed hub.

One management strategy for the 'tyranny of distance' posed by our large country and the distances between major cities is localisation, which has not been touched on significantly in the issues paper. Investing in local manufacturing, local and small scale/urban agriculture, 'local buy' incentives schemes etc. may prompt some reduction in road transport emissions around smaller goods and products while providing positive local economic development outcomes. While this is likely to have a less impactful sustainability outcome than larger investment in sustainable transport options and top end infrastructure, the fostering of functional local economies can focus localised community sustainability efforts and contribute to the whole and when scaled across the local government sector could be significant.

4. Regional Prosperity

4.1 How can we support the agricultural sector to participate in the low-carbon transition?

The City of Canning currently provides a 'first of its kind' voluntary offsets scheme for staff, enabling them to offset their vehicle and/or household emissions through a fortnightly contribution scheme from salaries. The City partners with the Carbon Neutral Charitable Fund, which creates internationally recognised 'Gold Standard'

accredited offsets 'forests' in degraded rural areas. Staff contributions support this scheme.

There are numerous opportunities for urban local governments to partner with regional projects and Councils to support the agricultural sector. A scheme like the City of Canning's #carbonoff program could be further explored and offered throughout State and local government, to help rural communities and agricultural business to set aside and covenant tracts of degraded land for carbon farming or offsets projects.

4.2 What opportunities do carbon offset markets present for Western Australian land managers, including Aboriginal groups?

For urban WA local governments carbon farming has not traditionally been a market heavily invested in, largely owing to the strict eligibility regulation around the size and make-up of accredited offsets in National and International offsets standards and legislation.

However, the rise of urban forestry, designed to mitigate the impacts of climate change, in particular urban heat impacts, should be an area of investigation and opportunity for the State Government. There are opportunities for regionally aggregated urban forest projects to provide significant access to voluntary offsets for local business and industry. Appropriate State Government led programs to create a market to facilitate this, and potentially monetise local government led urban forestry could only be of benefit both to the urban landscape, and to the emissions reduction efforts of Councils and community.

Opportunities to work directly with Aboriginal businesses already exist in this space for local government through procurement exemptions, so supporting Aboriginal land management in an urban context is possible if a voluntary offsets market is supported. This should not be limited to regional land management programs.

Linking local government urban forest and biodiversity plans with a voluntary offsets program, and supporting Aboriginal urban land management would be in keeping with many local government policies around sustainable procurement and Aboriginal employment, climate change, urban forest management and sustainability.

4.3 What matters should the State government take into account in developing a strategy for carbon farming in Western Australia?

Appropriate carbon pricing mechanisms are required to facilitate a thriving market for offsets. This should be a Federal responsibility, but in the absence of strong leadership in this space, the State Government could provide landowner incentives and a voluntary offsets program to support carbon farming in Western Australia.

Land rights, biodiversity impacts, partnerships and Aboriginal and local job creation opportunities should be considered in developing any strategy designed to allocate lands to major projects that might be linked to long term covenants dictating their use.

5. Waste Reduction

5.1 What areas can we target to further reduce greenhouse gas emissions from waste?

While the direct greenhouse gas emissions associated with waste are noted in the Issues Paper as being limited, the emissions reductions associated with avoiding waste and transport associated with waste management may be significant both from an environmental and an economic perspective.

Incentivising local recycling, repurposing, circular economy and manufacturing would reduce transport emissions associated with shipping recyclable materials interstate or overseas and contribute to the development of new industries and jobs. Beyond this, whether or not waste emissions are considered material to our State or National carbon emissions profile, reducing the need to contaminate land by creating new landfills, and reducing the rate at which current landfills are being filled and decommissioned (transitioning to contaminated sites, causing yet another environmental and cost burden to State and local governments) can only be of benefit.

Enforceable packaging legislation and requirements for the manufacturer to receive waste from its products would likely lead to a reduction in waste generated. Similarly, legislating for total recyclability of products and packaging, lease rather than purchase and advocating for repair rather than replacement would reduce landfill, contamination and emissions associated with producing new and disposing of used products. The City supports the transition to a circular economy approach to holistic resource management and notes this both in its Sustainability Policy and its Strategic Waste Management Plan.

For more information on the City's Resource Management Project see: https://www.canning.wa.gov.au/about-us/our-future/sustainability/circular-economy-and-sustainable-resource-manageme

Notionally however, the idea of a circular economy does not and cannot accord with the State's assertion in the Issues Paper that "new resource sector proposals are likely to drive increases to WA's emissions in the short term". The circular economy requires looking beyond the current take-make-waste extractive industrial model, and aims to redefine growth, focusing on positive society-wide benefits. It is not only applicable to 'waste', but to all resources being extracted for any purpose (including fuels). It entails decoupling economic activity from the consumption of these finite resources, and designing waste out of the system. Underpinned by a transition to renewable energy sources, the circular model builds economic, natural, and social capital. It is based on three principles: designing out waste and pollution; keeping products and materials in use; and regenerating natural systems.

In essence, if the State is to adhere to its own policy position as outlined in the State Waste Strategy to move towards a circular economy, any avoidable increases in emissions should be considered in contravention with both Waste and Climate Policy, and addressed accordingly.

5.2 What can households, businesses and government do to reduce their waste and compost more?

Preventing waste at the source is more effective than addressing it at consumer level. The State has a fundamental role to play in legislating for reduced packaging, increased recycled content in packaging and local recycling capacity, particularly in driving and funding investment in localised recycling infrastructure (including innovation and other initiatives to deal with challenges in the recycling industry). This should align with the circular economy approach, and fund grant programs for circular economy innovators as well as resourcing educational campaigns. Where responsibility sits at a Federal level, State and local government advocacy through WALGA is appropriate.

Adopting consistent standards for what items can be put in recycling bins, and highly visible and accessible labelling to identify whether a product should be recycled, composted or directed to landfill would support the community in its efforts to manage resources responsibly.

The current symbol used on plastics to identify by type is often difficult to read for the vision impaired and should be designed to meet access and inclusion standards. Additionally, current plastic labelling is confusing. While people see the symbol on plastic items and assume that this indicates recyclability, this is not always the case and leads to confusion around how plastic items should be treated. Appropriate marketing for different language groups should also be considered at the State level to maintain consistency, and provided to local governments as appropriate to their key linguistic groups.

Identifying and avoiding future waste streams is another area requiring a state or national approach, both in terms of products designed to become redundant (e.g. mobile phones and electrical appliances designed to be replaced rather than repaired) and transition to new technologies. For example; the transition to electric vehicles is predicted to be rapid which is positive, however there isn't currently a plan for managing the potentially major waste stream created by obsolete vehicles.

6. Safe and healthy communities

6.1 What are the main climate risks for your household or your community? What can be done to manage these risks?

Climate change poses a number of risks to the community which will compound effects of disadvantage and inequity. The World Health Organisation attributes 150,000 deaths world-wide to climate change, a trend that is expected to increase with increasing temperatures to an estimated 500,000 by 2050[15].

It is expected that climate change will disproportionally impact households and communities on lower incomes, tenants and the homeless, who are unable to access household cooling (due to cost of energy or absence of infrastructure). Low interest loans to facilitate energy efficiency improvements to vulnerable households and

[15] Marco Springmann, Daniel Mason-D'Croz, Sherman Robinson, Tara Garnett, H.Charles J. Godfray, Douglas Gollin, Mike Rayner, Paola Ballon, Peter Scarborough, Global and regional health effects of future food production under climate change: a modelling study, Lancet 387 (10031) (2016) 1937e1946, http://dx.doi.org/10.1016/s0140-6736(15)01156-3.

community facilities have been successful in other states. Currently this would need to be facilitated at a state level as the Western Australian *Local Government Act* prevents initiatives of this type being undertaken directly through Councils.

The City of Canning has a particular focus on increased heat and reduced access to water, which may result in a decline in vegetation health in urban areas. The Canning region has been identified as having inadequate canopy cover and areas of significant urban heat. Decline in canopy cover will increase the urban heat island effect and reduce amenity in public spaces and streets. This will exacerbate health impacts on disadvantaged groups across the metropolitan area, particularly people experiencing homelessness who often have no refuge. It will also significantly impact the City's biodiversity and natural areas.

Increased fire risk is relevant to urban and peri-urban areas. Increased heat stress and lower humidity will result in drying of natural areas and higher fire danger across a significantly longer fire season. The proximity of urban and peri-urban bushland to housing, in many cases pre-dating current standards for building in bushfire prone areas, means a significant number of properties and infrastructure are exposed to fire risk.

More intense rainfall events will place greater stress on existing stormwater drainage systems, potentially resulting in localised flooding of roadways and properties. These localised flooding events will be external to coastal and riverine hydrological issues outlined below, and will require additional solutions to manage. The continued implementation of Drainage for Liveability projects across Local Governments, supported by the Department of Water and Environmental Regulation (DWER) and the Water Corporation, will assist in slowing flows and supporting localised groundwater recharge. Additional support will be required, however, to ensure that stormwater storage is built into infrastructure projects, ideally incorporating stormwater drainage cells to facilitate additional localised groundwater recharge.

Coastal and riverine areas will be subject to altered hydrological regimes, exposure to extreme weather event impacts such as flooding, erosion and prolonged inundation or drying of habitat. State government has previously focused on inundation and erosion impacts in coastal areas, however recent mapping indicates that it is a significant issue for the Swan and Canning Rivers with Cannington being Western Australia's most impacted inland area by 2100.

Areas vulnerable to climate change risks in these areas will continue to expand and the risk increase as global temperatures rise. Engineering solutions are largely inappropriate and serve to transfer the impact or risk to other areas, hence the State needs to consult, deliver and communicate a policy of managed retreat to facilitate progressive movement of infrastructure and residences away from vulnerable areas and provide sufficient land for environmental buffers.

With current conversations around insurability under climate change impacts, there is the additional risk that people currently living in fire or flood prone areas will not be able to access insurance to manage that risk in the future, and their property resale values may be affected as a result. Consideration of compulsory land acquisition,

property buy-backs and other legislative measures may need to be applied by the State and local government if managed retreat is to be implementable.

The IPCC notes that climate change has already altered the distribution of some vector borne diseases[16]. Rising temperatures and extreme rainfall events resulting in flooding may lead to longer periods suitable for mosquito breeding in the Swan Canning Catchment and increase incidences of vector born disease locally. Local Governments are responsible for monitoring local water bodies and undertaking pest management. Additional resourcing will be required to manage increased duration of suitable breeding habitat or changing species composition (identification and management techniques).

Ethical issues around climate change, particularly with reference to climate refugees have not been addressed in the Issues Paper. The City wishes to flag that some of Western Australia's close island neighbours will be deeply affected by climate change impacts, including the Torres Straight Islands, and provision for supporting these communities should be considered.

Actions to address these risks are outlined in response to other questions the body of the paper.

6.2 What are your biggest concerns about Western Australia's future climate?

Collectively, local governments have been leaders in climate adaptation and mitigation and it remains one of the top five priority policy issues; however they have generally been undertaking this role at best in a policy vacuum, and at worst in an actively unsupportive political environment, leading to a disjointed, ad hoc approach.

Climate change requires an urgent response, yet to date, action by Federal and State government has not been sufficient. The Intergovernmental Panel on Climate Change has made clear that in order to keep global climate change at or below 2^{o}C, rapid and significant emission reductions are required worldwide.

As previously noted, Australia is not on track to meet its international obligations under the Paris Agreement to achieve agreed greenhouse gas emissions reduction targets. Western Australia is the highest per capita emitting state (largely as a result of energy intensive industry) in Australia, yet does not have a policy or actionable targets to address emissions or climate change. Policy inaction at both State and Federal level, coupled with ongoing subsidies for energy intensive, fossil fuel industries is resulting in widespread and observable changes and locking in future adaptation costs and economic losses. The current State Government has the opportunity to address these issues proactively.

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[16] Confalonieri, U., B. Menne, R. Akhtar, K.L. Ebi, M. Hauengue, R.S. Kovats, B. Revich and A Woodward (2007). Human Health. Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson, Eds., Cambridge University Press, Cambridge UK, 391-43

While the Climate Issues Paper acknowledges that WA's greenhouse gas emissions continue to increase, it does not substantially address how these emissions can be effectively avoided, managed or reduced. Instead, it focuses on adaptation and preserving WA's economic development. A circular economy is one that decouples economic growth from resources, and this paper does not address limits to growth adequately. A strong, healthy economy is one where people thrive, not one where corporations thrive while people absorb the impacts of their actions. However, maintaining a strong economy does not need to be predicated on outmoded technologies when access to abundant renewable alternatives exist.

Assumedly, the intention of the paper is to gauge appetite for change and to encourage the community to address these issues. However, without strong leadership a sustainable outcome is not assured in the context of a state dominated by the mining and resources industries, whose lobbying and influence have already affected the outcome of recent approvals and developments and overruled EPA recommendations in this space.

The Climate Issues Paper does not explicitly propose to introduce an emissions reduction target or renewable energy target in WA or pathways to achieve these targets, like other Australian states and territories. While it refers to the aspirational net zero emissions target included in the *Greenhouse Gas Emissions Policy for Major Projects*, it does not propose to incorporate this target in formal state policy.

A robust emissions reduction policy supported by measurable and enforceable targets must be developed if sustainability is desired. A legislative and regulatory response is required at this point to ensure that industry is no longer permitted to treat their emissions responsibilities as an externality and pass the cost and risk of mitigation and adaptation to local government and the community.

The City's biggest concerns about Western Australia's future climate are that, in the absence of strong leadership and action in this area, impacts already being seen at a local level, and risks already being borne by the community (such as heat impacts, fire risk, localised flooding, drying wetlands, biodiversity decrease, mosquito borne viruses etc.) will worsen and the cost and reputational risk of this will be borne by local government.

Local governments are responsible for a range of functions and decisions that can impact climate change and increase, or decrease, greenhouse gas emissions. They are directly affected by climate change impacts and have heretofore been largely responsible for addressing these impacts, both immediate and predicted (through local adaptation planning and risk management) with insufficient State or Federal Government support for this devolved responsibility. They also have the ability to positively influence community understandings of, attitudes to, and local action on climate change with access to adequate capacity, expertise and funding.

Roles and responsibilities for local government in the climate change adaptation space need to be more clearly articulated, particularly where local government investigations lead to acknowledged risk. By devolving this responsibility to local government, State and Federal governments place a disproportionate and inequitable burden of

responsibility on local government for climate adaptation actions, with inadequate funding to support necessary interventions, infrastructure upgrades and maintenance programs. This in turn may lead to increased risk and potential liability.

6.3 What could be done to ensure your community is better prepared for possible climate impacts?

The *Local Government Act* specifically prevents local governments from forming or acquiring control of a body corporate. This places limits on local governments wishing to enter into certain legal arrangements – including those that may provide or partner to provide facilitated delivery of community and commercial energy efficiency and renewable energy opportunities. The high degree of transparency and accountability required under the *Corporations Act 2001* would apply to local governments if this restriction under the *Local Government Act* was removed.

Local governments have demonstrated the will and ability to achieve significant reductions in their own carbon budgets, however, the ability to significantly influence and support community and commercial initiatives is limited by availability of emissions and energy data and ability to facilitate innovative community bulk-buy programs. There is a genuine need to ensure that the people most at risk of energy poverty are able to opt into programs that enhance their ability to meet and manage rising energy costs.

Residential tenants, unit/strata residents and low income households are often most susceptible to energy price shock and may be least able to take advantage of commercially available renewable energy and efficiency options. In Australia, rental properties represent approximately 30% of the property market. Residential properties are responsible for 11% of total energy consumption and 9% of greenhouse gas emissions. Rental properties managed by agencies access significantly less energy efficiency upgrades and both tenants and landlords have identified access to financial capital as a significant barrier to energy efficiency improvements. The current tax system provides greater assistance to established home owners and investors than to renters. Classifying energy efficiency upgrades as 'repairs' under regulations would allow upgrades to be fully deductable against income.

These are acknowledged market-based barriers, and despite many years of local government policy attempting to redress them there has been little shift in the ability for local government to influence best sustainability practice across the residential development sector. Legislative change, mandated and monitored energy efficiency standards, strengthening of building codes and specific support for local government to provide planning and financial incentives to drive sustainability related improvements to residential properties is increasingly necessary.

Amending the *Local Government Act* to specifically support community financing models/bulk-buy schemes (and their enabling financial instruments), and marketing these via local government to property owners and tenants would potentially decrease tenancy inequities, support participation by low income households, reduce financial stress associated with rising energy costs and incentivise efficiency in multi-unit dwellings by removing financial barriers and split incentives. It would provide fairer

access to renewable energy opportunities, local employment diversification and growth and community climate resilience.

If a State based climate policy is to be effective, a number of existing pieces of State legislation, including the Local Government Act, will need to be reviewed to ensure no unintended barriers to application or success exist.

7. Water security

The City of Canning is considered a leader within Local Government in managing water sustainably, including through water efficiency projects and broader more holistic water sensitive city thinking and practice. The City has achieved Platinum Waterwise Council Status through a number of major projects and interventions, community campaigns and educational programs.

For more information on the City's Water projects see:
https://www.canning.wa.gov.au/about-us/our-future/sustainability/water-sensitivity-and-literacy

7.1 What can we do to encourage Western Australian to use water more efficiently and adapt to a drying climate?

Sustainable water management is not just about water efficiency, but should incorporate a more holistic "water sensitive city" or waterwise approach. The implementation of waterwise principles will assist in mitigating impacts from climate change, and ensure that Western Australia remains a liveable and biodiverse place in the face of increasing temperatures and reduced rainfall. The recently released Waterwise Perth Action Plan outlines a number of actions intended to support a Waterwise Perth that is cool, liveable, green and sustainable. It is essential that these actions and targets are supported across the whole of State Government to ensure that they are implemented effectively, and are not just the responsibility of the specific water related government bodies.

Additionally, staffing levels at the bodies responsible for the management of water resources must be maintained or increased to allow for a diversification of their functions into the water recycling and re-use space.

The allocation and use of water resources must be more greatly incorporated within the planning framework as the multi-functional benefits of water related infrastructure, (i.e green infrastructure) that are essential adaptation and mitigation infrastructural elements are also a key outcome of this process.

While the responsibilities outlined in the Waterwise Action Plan are primarily related to State Government departments, it is considered that Local Government is ideally placed to undertake real action, and particularly within local communities. It is therefore critical for the success of the Action Plan, that Local Government is supported appropriately to implement tangible projects to assist in the achievement of the actions and targets.

While health considerations are a key consideration for water re-use and waste water recycling, the regulatory environment could be both streamlined and additionally resourced to allow for the greater uptake and support of these type of innovations across Local Government and State Government development organisations. Best practise water use should be an outcome embedded within all state development practice and projects, not just singular examples.

When specifically considering water efficiency, this requires addressing consumption and reuse of water and a transition to a 'circular water economy'. Currently the majority of 'waste water' from sewerage treatment plants is sent to ocean outfalls, greywater is directed to the sewerage system and runoff from rooftops and hard surfaces is generally directed untreated to nearby water bodies. In an increasingly water constrained environment, this represents a waste of a resource that could be treated and directed to subsurface irrigation of sports fields, public open space and road verges. At a residential lot level, greywater and runoff should be recycled to provide water for gardening and non-potable uses.

Minimum water efficiency standards and water recycling requires a State approach to ensure that it is included in building codes, development approval processes etc. Failure to integrate water efficiency at a State level leaves local government planners unable to enforce these measures in developments and results in a business-as-usual approach to water management by developers.

Groundwater use needs to be measured and costed. As an increasingly significant percentage of Western Australia's potable water is extracted from groundwater sources, it is unreasonable to allow unmonitored groundwater abstraction from urban centres. The environmental need for groundwater should be included in any water allocation calculations.

Critical to the success of any changes in water management is an improved understanding of the value of water in the community. Opportunities to engage the community in water education, and particularly its role in adapting to the impacts of climate change, should be recognised and acted upon by all State Government Departments in collaboration with Water Corporation and DWER and incorporated specifically in any document/s addressing climate change mitigation and adaptation.

7.2 Are there policies adopted in other jurisdictions we should consider for Western Australia?

A distributed approach to water and waste water management as is the case within the eastern states of Australia should be considered. The singular water utility within Western Australia limits water efficiency and innovation within the sector, in particular with regard to water recycling and re-use projects.

Cross agency working groups within government should be facilitated to address integrated water management across all sectors. An approach should be led by state government which engages and enables both private companies, the government sector

and the community to continue to meet economic, social and environmental sustainability considerations. This approach should utilise the significant research that has been undertaken by government, universities and cross-agency research institutions such as the CRC for Water Sensitive Cities to build on the work being undertaken within this sector by these parties.

8. Liveable towns and cities

8.1 What are the key barriers to improved energy efficiency for our built environment?

Since the introduction of the new Building Act in 2012, WA buildings have been required to incorporate energy efficiency requirements. However while compliance with BCA energy efficiency provisions are required to be documented and provided to an independent building surveyor, this only occurs at the start of the process, as part of the application for a building permit. There is no requirement for the builder or other agency to verify that the building has achieved the energy efficiency requirements that were submitted at permit stage, nor for any ongoing monitoring.

Buildings account for significant carbon emissions during construction and occupancy. Improving energy efficiency with renewable energy technologies can make a significant contribution to greenhouse gas emissions reductions (up to 87%[17]) within the built environment sector.

Addressing limitations in the *Local Government Act* to facilitate building upgrade finance and similar finance mechanisms for sustainability upgrades to existing commercial buildings could facilitate access to opportunities to improve building efficiency and reduce emissions. If successful, this could also be applied to residential dwellings under a similar scheme.

Access to finance has been identified as a key barrier to undertaking energy efficiency upgrades in commercial buildings, resulting in older building stock that is inefficient and costly to run. Commercial buildings achieve an average of 45% energy efficiency improvements though design and construction upgrades. This would support the creation of efficient and desirable commercial buildings and precincts and place activation within local government areas.

The business-as-usual approach, particularly in the planning, building and development industries, has resulted in a large proportion of new and existing housing stock that is poorly suited to the Western Australian environment, resulting in high heating/cooling, and limited (or no) ability to provide or retain onsite vegetation leading to increasingly hot suburbs with poor amenity and limited active transport options.

Designing urban spaces for liveability requires consideration of human interaction with local places. The provision of adequate levels of shade and infrastructure to support active modes of transport needs to be considered early in the planning process at a level

[17] IEA (2019), "Perspectives for the Clean Energy Transition", IEA, Paris, www.iea.org/publications/reports/PerspectivesfortheCleanEnergyTransition/.

equal to traffic planning and roads design. The State Government has a strong role to play in ensuring the *Planning and Development Act* and the *Building Codes and Regulations* support the development of sustainable suburbs and buildings and provide enforceable guidelines for the relevant planning agencies and industries.

8.2 What information or tools do you require to improve energy efficiency in your household or workplace?

Access to community level energy and emissions data would support the development of targeted programs to improve energy efficiency at a community level. Currently it is difficult to access localised data from State owned utilities providers. This should be made freely available and easily accessible to local governments.

A key tool that would be of value to the City of Canning, and to the local government sector more broadly is a measurement and evaluation tool that can track and monitor a local government's progress towards energy efficiency, renewable energy and emissions reduction targets (amongst other sustainability considerations).

The City of Canning is currently investing directly in the development of an online tool/portal for the local government sector in consultation with a group of local governments, WALGA and industry partners. State support to develop this tool and ensure that it provides the best monitoring, evaluation and reporting potential possible would be of high value to the sector initially, with a view to also developing a community platform for local government to support community and local industry.

This portal could potentially provide invaluable data to the State government on the value of local government investment in sustainability and its progress in supporting State emissions and energy targets. The City would appreciate State support and investment in this tool.

For local government, the availability of cost effective smart metering to monitor facility energy consumption in real time, and a simple and comprehensible dashboard to analyse energy data would be of high value.

At household level a simple calculator/tool, accessible through energy providers (largely State-owned) which matches metre readings, house footprint and occupancy, energy consumption details (i.e. number/type of appliances and lighting and energy ratings) with simple, easy to understand carbon equivalences (i.e. number of cars on road etc.) and suggestions on how to improve energy efficiency would be of value.

8.3 What energy efficiency standards or disclosure measures do you support for our homes and offices and appliances we use in them?

All buildings and appliances should have an energy efficiency rating to enable consumers to make informed decisions prior to purchase. The Australian Capital Territory model requires houses that are rented or sold to have a sustainability report.

While many local governments, including Canning, work to enable energy efficiency in building design at planning and development approvals level, aligning with one

particular standard or rating scheme has proved difficult in the past, particularly where developers object to paying the consultancy and ratings verification costs associated with some schemes. Additionally, many current ratings schemes apply only to commercial or multi-dwelling developments and are not easily applied to single residential or small developers / suburban lot subdivisions etc.

If a consistent scheme is to applied across Western Australia for residential and commercial building, this should be developed, delivered, mandated and supported at a State (or even Federal) level, so that local governments are able to provide consistent information to developers at all scales and make approvals decisions based on adherence to those standards. For the most part, local governments are obliged to limit their powers in this area by giving an 'equivalency' option to developers (i.e. noting a minimum 5 star Greenstar 'or equivalent' rating), but often not having the internal expertise to determine what would specifically constitute an equivalent standard.

8.4 How do you think climate change will affect the liveability of your neighbourhood or region?

Refer 6.1, 8.1 and 8.5.

8.5 How can we improve the retention of vegetation, particularly tree canopy, in our cities and suburbs?

To support local governments through the development approvals process, the City requests that the State Government take a regulatory approach and require the retention and protection of trees in accordance with *AS 4970-2009 Protection of Trees on Development Sites* and incorporation of (appropriate) trees across all forms of development, including minimum specified deep soil zones, minimum verge widths and appropriate setbacks, particularly in medium density / housing estate areas, where significant canopy loss is occurring and where local government has little enforceable influence. This should be regularly monitored and enforced through an appropriate compliance regime. Anecdotal evidence suggests that fines for environmental breaches are factored into the cost of development and not considered an adequate disincentive by developers.

Vegetation clearing and significant changes to landform should only be permitted when absolutely unavoidable (not when convenient to the developer). A hierarchy of actions should be adopted with avoidance as first principle, and clearing/landform change should only be permitted when the developer has demonstrated that all other options have been considered and vegetation offset measures have been committed to as a condition of development approval. This should be combined with environmental bonds placed in trust to ensure the vegetation management is undertaken. Significant fines for developers not meeting obligations and limits on ability to undertake new development until commitments are undertaken would contribute to improved outcomes in greenfield development.

Tree retention policies that prevent the clearing of significant trees and areas of canopy within private property must be implemented to halt canopy loss, prevent urban heat

and assist in the retention of biodiversity. These policies exist within most states of Australia and prevent wholesale loss of vegetation and canopy within both large scale and small lot scale urban development. The development of these policies must be supported by state government with clear support mechanisms, staffing and associated policies to facilitate this through state planning mechanisms.

The data gathering in this space that has been occurring through the CSIRO's urban monitor program gives a consistent metric that this loss and retention can be measured upon, ensuring state government are able to measure tree canopy across local government areas. This data should be made publicly available to increase the community's knowledge and awareness of the importance of urban tree canopy, especially in regards to mitigation and adaptation activities.

The requirements of vegetation management under bushfire regulations are contributing to loss of habitat in areas with designated building envelopes. The ability to build to the edge of the building envelope results in vegetation loss outside the envelope to accommodate bushfire requirements. The building envelope should contain all development including vegetation management for bushfire purposes. A minor increase (10%) could be allowed to support this approach.

As previously mentioned, innovative mechanisms for linking the successful implementation of urban forest strategies to voluntary carbon offsets to be offered for sale to third party purchasers (such as business and industry) could also provide a monetised incentive for local governments to retain and increase canopy cover.

9. Resilient infrastructure and businesses

The relevance of carbon emissions and climate change to environmental decision making is well established in Australian law[18] and is directly relevant to the planning functions of local government. Exposure to legal risk associated with climate change is a business continuity and resilience issue for local government.

While not specifically covered by the requirements of the *Corporations Act*, local governments have similar equitable fiduciary responsibilities in terms of managing foreseeable risk on behalf of their ratepayers. It is conceivable that ratepayer or resident groups could instigate class action litigation similar to that following the 2011 Queensland floods or pursue negligence actions on the basis that there is a genuine community fear of impacts arising from inaction on climate change. Current rhetoric through activist climate change groups has the potential to influence community sentiment around this, with governments the most likely focus of their advocacy.

The Western Australian legislature does not provide Local Government with indemnity if it acts 'in good faith' in following State policies when considering developments in climate change impacted areas, as these areas are increasing and impacts becoming more frequent and severe, both the cost and legal risk of liability is becoming more

[18] Summarised in *Walker v Minister for Planning* [2007] NSWLEC 837, [69]–[119] (Biscoe J) and on appeal: *Minister for Planning v Walker* (2008) 161 LGERA 423; [2008] NSWCA 224, [43]–[44], [55]–[56] (Hodgson JA), [65] (Campbell JA), [66] (Bell JA) agreeing. cited in cited in The Hon Michael Kirby AC CMG, 'Environmental and Planning Law in the Age of Human Rights and Climate Change' (2019) 36 Environmental Planning and Law Journal 181. p195

likely. Effectively, if a planning decision, even if made within the bounds of State legislation or policy results in adverse impacts on property, local government may, at this moment, be held liable. While other jurisdictions such as NSW have taken some measures to provide (particularly coastal) local governments with exemption from liability (*Local Government Act, S733*), no such limitations exist for Western Australian Councils.

Section 100 of the Emergency Management Act (WA) 2005 protects Local Government from liability in relation to fire and other hazards defined in this Act, however there is currently no protection that limits WA local government's liability in the event of flooding or damage outside of this.

A significant body of research notes that engineering solutions are generally short-term, costly interventions and often exacerbate or transfer management issues to other areas. A strategic approach is required from the state government to develop and implement a managed retreat program in identified flood risk areas.

There needs to be a stronger partnership approach and cost sharing across levels of government, rather than an unconsidered approach of devolved responsibility to local government. While Coastal Hazard Risk Mapping and Adaptation Planning goes some way to understanding sea level rise, inundation and erosion risk, there is an absence of both a mechanism and apparent appetite for addressing the other risks associated with riverine inundation and bushfire in urban and peri-urban areas.

The consistent approach applied to coastal risk mapping needs to be applied to these and other risks to best support local government risk management processes. However, this needs to come with access to funding for implementation programs, as existing competitive grant funding programs can pose further risk by requiring the development of adaptation action plans to address risk without access to adequate resources for delivery.

In the past the attitude has been that once a local government has identified their exposure to climate adaptation risk and generated an action plan to mitigate them, it is then their responsibility to manage budgets to address those risks. These risks however are additional to business-as-usual, and fast increasing. They are also potentially costly, both from a reputational and financial perspective (i.e. putting memorials on titles, or communicating managed retreat policy in low lying areas).

Local Government, despite the vast breadth of services it provides to the community, has access to approximately 3% of taxation revenue, in the main via its own capacity to raise rates against its landholders. A few 'extra per cent' are available via grants and revenue generation activities such as parking levies etc. Balancing this against the need to manage increasing climate risks leaves local government exposed, having disclosed potential impacts to the community without adequate means to mitigate them.

9.1 Do you currently assess the impact of physical climate risks on your business, assets or infrastructure?

The City considers climate change risk across operational areas and has a climate adaptation plan based around a risk assessment process completed in 2016. This process is due to be updated in 2020 and will incorporate both mitigation and adaptation measures, including energy and emissions management policy and practice.

9.2 Is there information which would assist you to do this better?

Information sharing between local and state government generally occurs when a direct request for specific information is made. A central searchable 'library' with links to policy, plans, data and reports would make available information more visible and available. A library of this type was available through WALGA for a number of years, funded by the previous State Labor Government in 2010. This lapsed as a result on inadequate ongoing resourcing which prevented the database from being consistently reviewed and updated when new information became accessible. WALGA's current website incorporates some of the resources developed in conjunction with the state government at this time, however a comprehensive, state-based research and policy library, hosted in a freely accessible space with a commitment to ongoing maintenance would be of high value to local governments.

Climate change sits within the Department of Water and Environmental Regulation and has a webpage with some hyperlinks to further information. This seems vastly inadequate given the urgency and scale of the mitigation and adaptation actions required to meet the Paris Agreement Targets.

The State should ensure that adequate funding and resourcing is directed to climate change and the State Office of Climate Change (as a dedicated Ministry and Administration) is re-established to ensure that the state can provide accurate, up to date information and take a leadership approach to community and stakeholder education and training, and coordination of climate change project funding.

9.3 What are the best ways to enhance the resilience of public and private infrastructure?

Ensuring that climate change is recognised as a key risk and that a whole of life cycle assessment is undertaken on government and government funded projects to ensure that the full economic, environmental and trade-off costs are considered. Emissions intensive projects should be required to demonstrate that mitigation actions will reduce emissions intensity to a level consistent with Western Australia's carbon budget with compliance audits a standard condition.

State government infrastructure projects should demonstrate ambitious minimum standards in energy and water efficiency and encourage the use of recycled and low carbon building materials. The energy intensity of building construction and operation should be accessible to the community to demonstrate the benefits. Additionally minimum energy and water efficiency standards should be required in legislation with a requirement for building audits to be undertaken periodically during occupancy to ensure that environmental claims are valid.

Access to finance has been identified as a key barrier to undertaking energy efficiency upgrades in commercial buildings and residential buildings, resulting in older building stock that is inefficient and costly to run. As noted, in its current form, the *Local*

Government Act prevents local governments from entering Building Upgrade/Sustainability Finance partnerships and this should be addressed.

10. Protecting biodiversity

10.1 Can existing land use and biodiversity management practices be modified to reduce vulnerability and improve resilience?

Biodiversity outcomes can be achieved at development approval phase. Current development practices that result in predominantly flat or terraced suburbs devoid of vegetation or retained trees are a significant contributor to biodiversity loss. Design of developments to retain existing vegetation would retain biodiversity values and reduce the cost associated with planting verges, public open space and corridors.

State Planning Policy 2.7 – Planning in Bushfire Prone Areas, is the overarching policy for land use planning within bushfire prone areas and requires applications for habitable dwellings to achieve a Bushfire Attack Level (BAL) of 29 or below. The current practice of allowing clearing outside of designated building envelopes to achieve a lower BAL (and reduced costs to construct a habitable dwelling) results in habitat identified for retention being lost. An alternative approach would be for bushfire requirements to be included within the building envelope, with the responsibility on the developer/proponent to size the building to accommodate, build to a higher (BAL), or a combination of both.

While many local governments, including the City of Canning, have specific Biodiversity Strategies in place, it is noted that the last published State of the Environment Report was in 2007, and Western Australia does not have a State Biodiversity Strategy. In order to manage the impacts of climate change on Western Australia's biodiversity and natural habitats it is imperative that a State-wide plan for biodiversity conservation and enhancement is enacted.

For more information on the City's Biodiversity and Urban Forest Strategy see: https://www.canning.wa.gov.au/about-us/our-future/sustainability/biodiversity,-the-natural-environment-and-land-use

10.2 Are there opportunities for new collaborations with landholders or communities to address climate risks and improve biodiversity outcomes?

Land use planning and development that is sympathetic to and works with vegetation and topography would support urban biodiversity conservation. Planning for connected corridors to facilitate species movement between areas of high conservation value and regeneration projects that incorporate climate variability in species would support biodiversity outcomes

Unnecessary vegetation loss could be avoided by requiring qualified arborists to undertake tree condition surveys and preventative maintenance as a condition of development and implement an environmental trust/fund to manage these costs post development. Developers would need to pay into the fund in a similar way to that for car park offsets/ecological offsets.

Developing a mechanism to measure the economic and carbon reduction value of trees or areas of vegetation would facilitate the ability of local government to calculate the value of vegetation lost during developments or other actions resulting in vegetation removal. Income generated through this mechanism could be directed to biodiversity and environmental remediation projects and supporting local government initiatives.

See also 8.5

11. Strengthening adaptive capacity

11.1 Are there gaps in the availability of adaptation knowledge, climate information or skills for your community, organisation or sector? How can these be addressed?

Previously, when climate change was identified as a priority by State and Federal government, there were a number of climate change officers within local government, and a high level of information sharing and collaboration between them. Current local government climate change projects are generally driven by individual environmental or sustainability staff, with few, if any dedicated climate change officers.

A strong policy response at higher levels of government supports investment in climate change skills at a local government level. Where the previous Federal Government invested heavily in adaptation research and science communication through the National Climate Change Adaptation Research Facility, this funding has all but ceased under the current government, and the previous State Government reflected this lack of political will.

Previous processes around community engagement for climate change in local government, in particular in the adaptation space, have been limited, and it has become clear that this is a complex area that the general public finds difficult to apply to their personal circumstances. This has effectively 'hidden the risks' both at a community and at a Council level, which becomes a risk in itself. The community, in general, has a very low level of understanding of climate adaptation, particularly around property and land value impacts and insurability.

See also 9 and 9.2

11.2 What are the main barriers to the adoption of effective climate change adaptation?

Aside from the obvious barriers that sit within the Federal political landscape, which is possibly not for discussion at this juncture, the key barrier to climate change adaptation in Western Australia is the absence of an emissions target and supporting policy to drive action. Sensibly, mitigation is the best adaptation strategy. While adaptation addresses impacts already occurring, or locked in to the system as a result of emissions already created, prevention of future emissions is the most effective measure to ensure that future generations do not inherit the adaptation implications of current actions.

In addition to robust policy support from State and Commonwealth governments, local government needs climate change to be a funded priority. The absence of funding and policy support has seen a slowing of the projects and knowledge sharing that occurred when there was a strong Federal and State approach.

The competitive grant based approach applied to many climate change initiatives do not allow for a robust, state-wide approach to addressing the risks and opportunities. Similarly, grant based approaches are for reasonably specific outputs and do not allow for addressing locally/regionally identified risk or the ongoing nature of climate related projects. This results in a spate of narrow focused short-term projects which, many Local Governments do not have the staff or financial capacity to continue, resulting in sunk capital and redundant outcomes.

While local governments have continued to work solidly in this area, despite a lack of human resourcing, support and funding, in the context of a globally acknowledged climate emergency the City of Canning calls for strong leadership and coordination from the State Government. While the development of policy is a positive step, proactive and rapid action planning for both mitigation and adaptation programs which are designed to facilitate on-ground impact and are adequately funded must be an outcome of this process.