OPEN CITIES
2019 POLICY AGENDA

THE NEXT-GENERATION

UTILITIES & SERVICES FOR A
MORE SUSTAINABLE AUSTRALIA

OPEN CITIES
Service Alliance

OPEN CITIES ALLIANCE:

WHO ARE WE?

OPEN CITIES IS AUSTRALIA'S PEAK ASSOCIATION FOR NEXT-GEN UTILITY AND MOBILITY INFRASTRUCTURE & SERVICES, WORKING TO ACCELERATE THE CIRCULAR ECONOMY AND TRANSITION TO A ZERO-CARBON SUSTAINABLE FUTURE.

ITS MEMBERS INCLUDE

ARUP, Astrolabe, Australian Energy Foundation, Canada Bay Council, City of Parramatta, City of Sydney, Clayton Utz, Cocoon Cool Roofs, Evenergi, Flow Systems, GoGet Car Share, Hydraloop, Integral Group, Internet of Things Alliance Australia (IoTAA), Junglefy, Kinesis, Liverpool City Council, Meshed, OptiComm, OzHarvest, Queensland University Technology (QUT), Shinehub, Smart Commercial Solar, South Sydney Region of Councils (SSROC), The World's Biggest Garage Sale, UTS Institute for Sustainable Futures, Renewable Intelligence, University of Wollongong Smart Infrastructure Facility.

A NEW UTILITY & MOBILITY MODEL FOR AUSTRALIA:

THE CASE FOR CHANGE

The efficiency and the effectiveness of Australia's utility and mobility infrastructure will be critical to the resilience of our communities and the natural environment, the liveability of our cities, and the productivity of our national economy.

Existing large-scale centralised infrastructure solutions have changed little over the decades. They are built around high emissions, inefficient and dated power plants, centralised water and waste, roads, and transport networks designed to service individual car ownership.

In the absence of a national strategy to transition Australia's aging utility and mobility sectors to a sustainable future, Australians are continuing to miss out on low-cost, resilient, and sustainable services.

Australia needs a plan to ensure that today's homes and communities can benefit from affordable, innovative, and sustainable approaches to water, waste, mobility and information communications technology (ICT).

They served us well in the 19th and 20th centuries but are no longer suitable for the rapid growth and transformation occurring across Australian cities and suburbs, nor the accelerating impacts of climate change.

Existing utility and mobility markets need to be opened up to embrace next-generation (Next-Gen), highly profitable innovative business models that promote reuse and sharing.

New sustainable infrastructure is enabling millions of people worldwide to produce and consume their power and water in the home, office, warehouse, and reap the financial benefit.

Internationally, businesses and households are cutting their costs by harnessing free energy from the sun or recycling their water and waste and trading the excess through two-way energy and water grids. They are becoming 'Prosumers' while Australians miss out on many of these benefits.

Leadership and policy reforms are needed to ensure Australia's economy continues to grow, decoupled from its current resource use and energy consumption.

A shift to a circular economy that minimises waste, reduces environmental impacts and frees up investment and resources, will generate jobs and increase productivity.

Open Cities Alliance is calling on the Federal Government to implement policy reforms and targets for the nation-wide development of Next-Gen utility and mobility infrastructure, and transition to a circular economy.

THESE REFORMS WILL:

- Promote the development of a circular economy that will create jobs and increase productivity by minimising waste, reducing environmental impacts and freeing up investment and resources.
- Develop localised infrastructure and services to assist governments in meeting and exceeding current carbon and job targets.
- Foster the development of Next-Gen energy, ICT, mobility, waste and water infrastructure and services to encourage participation in these markets, driving jobs, and productivity.
- Promote Next-Gen mobility, including shared mobility, mobility-as-a-service, AVs and EVs, to generate more affordable transport options, tackle congestion, improve air quality, create safer streets, and address affordability.
- Initiate federal and state government projects to research, adjust and remove regulation, and focus on the essential and inevitable transition to new infrastructure and services that will create jobs and investment into the future.

These reforms respond to the challenges and seize the opportunities identified in the 2019 Infrastructure Australia (IA) audit, including in relation to consumer access, cost, quality of infrastructure services, and energy supply.

Open Cities Alliance agrees with IA that the time is right to reconsider how we deliver infrastructure and adapt existing networks to the changing user needs. A vision for Next-Gen infrastructure and level playing fields for new, more efficient, and sustainable solutions will drive the transition.

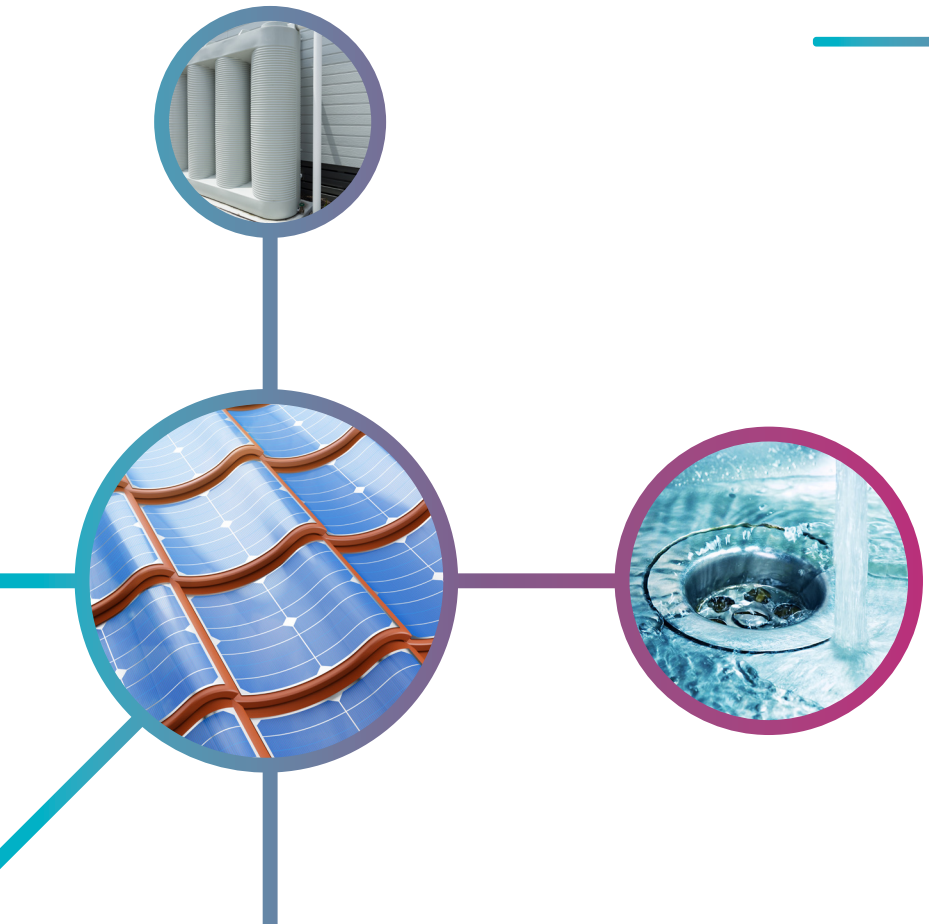
NEXT-GENERATION UTILITIES:

WHAT IS POSSIBLE

- Reduced energy costs, improved reliability, and a smart, clean two-way grid for the future.
- Reduced water costs, improved water management, increased drought tolerance and cooler, self-sufficient communities.
- Improved air quality, cooler communities, enhanced biodiversity, and more liveable, healthier and valuable homes and property.
- Realising the opportunities from the waste crisis, unlocking highly profitable reuse and sharing businesses that reduce waste to landfill and solve waste stockpiles.
- Busting congestion by providing more shared mobility and mobility-as-a-service, while ensuring the EV roll-out connects to a clean, smart grid of the future.
- Increasing productivity and jobs for future generations.

Next-Gen infrastructure includes integrated water management, recycled water, waste reuse, recycling and minimisation, solar, batteries, connected microgrids, Virtual Power Plants (VPPs) biofuels, mobility as a service, shared mobility, electric vehicles (EVs), Autonomous Vehicles (AVs), connected ICT networks, including IoT, cool roofs, and living infrastructure including trees, green walls, green roofs and facades.

These simple solutions can reduce household and business expenses and delivered at scale will boost the national economy.



OPEN CITIES ALLIANCE NEXT-GEN INFRA-STRUCTURE POLICY REFORMS

DRIVING PRODUCTIVITY

1. Make Australia a circular economy world leader by 2030 with a dedicated national strategy.

2. Establish a dedicated unit in Treasury to provide research and leadership on Australia's transition to a Circular Economy to drive productivity and create jobs.

3. Infrastructure Australia (IA) consider opportunities to fully leverage the potential of Next-Gen utilities/ mobility and services through the development of the Australian Infrastructure Plan and in response to those opportunities and challenges identified in the Infrastructure Audit.

4. Appoint a Prosumer Commissioner to champion prosumer rights across Government and implement a prosumer framework for individuals and businesses.

5. Resource the Productivity Commission to investigate the productivity opportunities from the implementation of a circular economy with a focus on Next-Gen infrastructure and services.

REDUCING COSTS, INCREASING RELIABILITY AND BUILDING RESILIENCE

6. Commit to staged targets that support reduced emissions in energy, water, waste, and transport sectors to provide certainty to business and drive innovation.

7. Establish a Heat Island Mitigation Unit in Prime Minister and Cabinet to develop and implement a Cool Communities Strategy to work across government to help reduce temperatures in classrooms, buildings, and communities.

REALISING THE BENEFITS OF NEXT-GEN INFRASTRUCTURE AND SERVICES

8. Leverage federal investment in infrastructure and through City Deals to incentivise the delivery of next-generation utilities and services.

9. Expand the scope of the Electric Vehicle Strategy to include integrated mobility and energy demand modelling.

OPEN CITIES POLICY AGENDA IN DETAIL

DRIVING PRODUCTIVITY

1. MAKE AUSTRALIA A CIRCULAR ECONOMY WORLD LEADER BY 2030 WITH A DEDICATED NATIONAL STRATEGY.

2. ESTABLISH A DEDICATED UNIT IN TREASURY TO PROVIDE RESEARCH AND LEADERSHIP ON AUSTRALIA'S TRANSITION TO A CIRCULAR ECONOMY TO DRIVE PRODUCTIVITY.

As the global economy prepares for 9.8 billion people by 2050, it's clear our linear economy is reaching the end of its life.

An emerging shift driving markets globally towards circular economics and reducing dependency of growth on finite resources is now underway.

The Australian economy is built on single-use "take, make and dispose" principles involving extracting resources, making products, using them, then disposing of them.

A circular economy keeps products and materials in use, through sharing, repairing, and reusing. It requires a change in the way we produce, assemble, sell, and use products. By reusing them, it is possible to drive productivity and create new jobs, while minimising waste and reducing our environmental impact. Circular economy activity is very closely aligned with carbon reduction and relies on next-generation utilities and services.

In 2015, the World Resources Forum Asia Pacific held in Sydney estimated the value of a Circular Economy to Australia could be AU$26 billion per year by 2025. More work is underway and required to quantify the Australian opportunity.

Australia is already experiencing this transition as new sharing and reuse business models enter the market. Examples include water and waste harvesting, recycling and repurposing, shared mobility, and local renewable energy generation.

Transitioning to a circular economy is inevitable. The greatest opportunities will be delivered more quickly if we embrace innovation, new efficient businesses, and new approaches to private and public collaboration.

Australia has the opportunity to be a global and regional circular economy leader by creating a level playing field for highly profitable Next-Gen circular infrastructure, products, and services. Urgent research and leadership are required to assess the value of the Circular Economy to Australia and prepare a transition plan.

Australia cannot grow sustainably by taking the same linear approach to utility and mobility infrastructure and services it has taken for the past 75 to 100 years. New, efficient and highly profitable businesses are generating jobs, reducing carbon, and providing goods and services that put downward pressure on utility costs.

CIRCULAR ECONOMY ON THE MOVE

2025

AUD $1.4 TRILLION

COST SAVINGS **GLOBALLY A YEAR**

AUD $26 BILLION

AUSTRALIA'S SHARE

World Economic Forum 2015

EUROPEAN EXAMPLE:

2030

IMPROVE **RESOURCE PRODUCTIVITY**

AUD $1.48 TRILLION

Mckinsey 2015

CHINA EXAMPLE:

2040

SAVE BUSINESSES AND HOUSEHOLDS

AUD $14.7 TRILLION

Arup 2018

REDUCING WASTE TO ZERO

AUSTRALIANS THROW AWAY

7.3 MILLION TONNES OF FOOD EVERY YEAR

COSTING THE ECONOMY EVERY YEAR

$20 + BILLION

AUSTRALIA PRODUCES

67 MILLION TONNES OF GENERAL WASTE ANNUALLY

ONLY HALF IS RECYCLED

Department of Energy & Environment

3. INFRASTRUCTURE AUSTRALIA CONSIDER OPPORTUNITIES TO FULLY LEVERAGE THE POTENTIAL OF NEXT-GEN UTILITIES/MOBILITY AND SERVICES

THROUGH THE DEVELOPMENT OF THE AUSTRALIAN INFRASTRUCTURE PLAN AND IN RESPONSE TO THOSE OPPORTUNITIES & CHALLENGES IDENTIFIED IN THE INFRASTRUCTURE AUDIT.

REUSING 1.8 WASTED SYDNEY HARBOURS

SYDNEY FLUSHES OUT TO SEA

1.8 SYDNEY HARBOURS

OF WASTEWATER **ANNUALLY**

= 1,000 OLYMPIC SWIMMING POOLS EVERY DAY

RECYCLED WATER CAN BE USED FOR UP TO

70% OF DAILY NEEDS & **100%** OF NON-DRINKING PURPOSES:

IRRIGATION, **TOILET FLUSHING**, CLOTHES WASHING, **WATER FEATURES**, ENVIRONMENTAL FLOWS **&** **COOLING COMMUNITIES**

Open Cities Alliance

Competition is essential to facilitate innovation and the efficient, sustainable, and productive delivery of all products and services.

Across Australia, most existing planning and regulatory frameworks preference standard monopolistic centralised services. Investment in alternative, more innovative solutions is limited.

Siloed institutional arrangements fail to allocate responsibility for broader investment outcomes and also reflect an institutional aversion to risk.

Australia needs a new utility model that is local and sustainable. This model would democratise infrastructure ownership to enable citizens and businesses to reap the financial benefits and actively participate, with collective ownership and responsibility. Citizens want a more significant say in their utility and mobility future.

For markets to respond to new technologies and opportunities in areas such as recycled water and waste, renewable energy generation, sustainable supply, open data networks, and shared mobility solutions. Action is required. Removing outdated regulatory barriers will create a level playing field and support the procurement and delivery of Next-Gen infrastructure and services.

Planning for and investing in Next-Gen infrastructure that integrates with centralised networks will create new solutions to today's challenges.

Next-Gen infrastructure solutions are already anticipating and adapting to change, managing risk, and delivering services that meet the future needs of Australians. They are unlocking future growth and development while improving the quality of life and productivity beyond the status quo.

However, these benefits need to be scaled across Australia to ensure communities are future-proofed and that solutions keep pace with community aspirations and demands.

4. APPOINT A PROSUMER COMMISSIONER TO CHAMPION PROSUMER RIGHTS ACROSS GOVERNMENT AND IMPLEMENT A PROSUMER FRAMEWORK FOR INDIVIDUALS AND BUSINESSES.

THE RISE OF THE PROSUMER

Australia is leading the rapid emergence of the prosumer: turning the traditional consumer of utilities and services into a producer as well.

Enabled by digital technologies and innovation, the rise of the prosumer highlights an exciting trend that is fundamentally altering the structure of our energy, mobility, water, waste and data markets.

Australia is leading the rapid emergence of the Prosumer: turning the traditional consumer of utilities and services into a producer as well.

The rise of prosumers has been enabled by digital technologies and innovation. It highlights an exciting trend, that is fundamentally altering the structure of our energy, mobility, water and waste and data markets, products, and services.

Despite this, federal policies and consumer frameworks do not reflect prosumer rights in any way.

Understandably, people want and are demanding direct participation and control over decisions and services that affect their life and their community.

They are exercising their ability to participate in the market, and want a fair share and fair pricing for electricity or water they may generate and sell back to a grid.

Technological advancements are reducing the size and cost of utility and mobility infrastructure, while services are expanding choice. These fundamental changes in the utility/mobility markets are helping and enabling people to share assets - their cars, houses, solar, water, and skills.

It is also leading to the democratisation of infrastructure as households and businesses become micro-utilities. Australian retirees are driving the conversion of rooftop solar, joining two million-plus households around Australia already with solar.

The products and services provided by prosumers have perhaps the greatest potential to change the way our communities function: by helping drive economic development, protecting the environment, reducing carbon emissions, and putting downward pressure on pricing.

Next-Gen infrastructure is driving new market competition and with it new choices for consumers to generate energy and trade it, produce water and sell it, and share mobility instead of owning a car.

These changes are driving productivity improvements, helping deliver new efficiencies in markets, and improving the resilience of existing markets. They are also providing a more sustainable built environment.

A Prosumer Commissioner will champion the rights of prosumers and ensure market structures support the ability of people and businesses to both produce and consume utility and mobility services and reap the financial and environmental benefits.

5. **RESOURCE THE PRODUCTIVITY COMMISSION TO INVESTIGATE THE PRODUCTIVITY OPPORTUNITIES** FROM THE IMPLEMENTATION OF A CIRCULAR ECONOMY WITH A FOCUS ON NEXT-GEN INFRASTRUCTURE AND SERVICES.

An evidence-based approach that captures and values the comprehensive community and productivity benefits of Next-Gen infrastructure is required.

The Productivity Commission provides independent research and advice to the Government on economic, social, and environmental issues affecting the welfare of all Australians.

It is best placed to provide our decision-makers with independent research and advice in assessing the barriers and solutions for enabling Next-Gen infrastructure and services across Australia.

The rapid convergence of utility and mobility solutions enabled by new emerging business models – and Next-Gen digital technologies including Internet of Things (IoT), data analytics, AI and blockchain – is making infrastructure and services more efficient.

This trend is delivering liveability, sustainability, and resilience, while importantly putting downward pressure on utility bills and infrastructure costs.

If facilitated, innovation in infrastructure can drive new jobs, efficiencies, and productivity, while decarbonising the economy.

Understanding the real lifecycle costs and values of infrastructure and services in Australia is critical to measuring the productivity of Next-Gen infrastructure.

Lifecycle Assessment (LCAs) should be included in Productivity Commission terms of reference, along with KPIs and methodologies to ensure consumers are aware of the exact costs and benefits of traditional infrastructure approaches versus sustainable precinct scale utility/mobility approaches.

Infrastructure policy and market settings support a centralised, last-century approach. Transitioning to 21st-century energy, mobility, waste and water businesses and services is now urgent and essential.

REDUCING COSTS, INCREASING RELIABILITY AND BUILDING RESILIENCE

6. COMMIT TO STAGED TARGETS THAT SUPPORT REDUCED EMISSIONS IN ENERGY, WATER, WASTE, AND TRANSPORT SECTORS TO PROVIDE CERTAINTY TO BUSINESS AND DRIVE INNOVATION.

Australia's utility and mobility sectors will transform over the next two decades.

A significant amount of existing coal-fired generation will close, shared and electrified mobility will dominate services, and centralised energy, water, and waste utilities will converge and transform into more localised and sustainable models, emphasising reuse and sharing.

Next-Gen infrastructure will play a critical role in the decarbonisation of our economy underpinning sustainability in the built environment, contributing to low/zero carbon outcomes.

Global markets also are changing the operating environment in which utility and mobility services are delivered. Markets are dictating a low-carbon future, where asset resilience has a market value, and zero-carbon and sustainability are investment fundamentals.

To secure investment certainty, the Federal Government must set a clear vision with enforceable targets to reduce carbon emissions across all infrastructure and services. Setting ambitious targets for renewable energy generation is critical to the success of emissions reductions.

Open Cities Alliance calls on all political parties to commit to sweeping emissions reductions across the energy, mobility, waste and water sectors, to hit the target of net-zero carbon emissions by 2050.

7. ESTABLISH A HEAT ISLAND MITIGATION UNIT IN PRIME MINISTER AND CABINET TO DEVELOP AND IMPLEMENT A COOL COMMUNITIES STRATEGY

As temperatures continue to rise and urban densities increase, Australia needs a coordinated national plan across three tiers of government to cool our cities and towns and prevent the devastating impacts on health, liveability, productivity, and biodiversity of rising temperatures.

Cities have their micro-climates and are hotter than rural areas due to reduced vegetation and increased hard surfaces – this is known as the Urban Heat Island (UHI) effect. The UHI effect will magnify with the increasing temperatures predicted with climate change.

Heatwaves have a greater negative impact on population health than any other natural hazard in Australia. The number and intensity of extreme heat events are continuing to rise due to climate change and is exacerbated in cities and urban built-up areas already affected by the UHI effect.

Open Cities Alliance is calling for the establishment of a Heat Island Mitigation Unit in Prime Minister and Cabinet to work with three tiers of government, industry and the private sector on a Cool Communities Strategy. This strategy should embrace Next-Gen infrastructure, technologies, and services to help deliver cooler classrooms, buildings, and public spaces across our communities.

Next-Gen infrastructure including living infrastructure (trees, green and breathing walls, green roofs and facades), local water reuse, stormwater, and rainwater harvesting, and cool materials can have a marked impact on reducing temperatures in the built environment, cooling schools for our children, homes, offices and commercial spaces.

In addition to reducing temperatures, the inclusion of living infrastructure will improve air quality, provide greater biodiversity, and reconnect people to nature to enable thriving communities in our cities.

Along with schools, homes and offices, living infrastructure is delivering benefits along motorways, car parks and other infrastructure assets by improving air quality, increasing biodiversity and reducing UHI in our urban environments.

COOLING COMMUNITIES

CITIES ARE

5 TO 9°C WARMER

THAN RURAL AREAS

ROOFS AND PAVEMENTS ABSORB **MORE THAN**

80% OF SUNLIGHT

WHITE ROOFS ARE

28-36°C COOLER

THAN **DARK** ROOFS

C40 CITIES

A 10% INCREASE IN URBAN TREE CANOPY

DELIVERS A 1.2°C REDUCTION IN TEMPERATURE

Kinesis

URBAN GREENING CAN COOL CITIES BY UP TO

8°C IN SUMMER

State of the Environment Australia

REALISING THE BENEFITS OF NEXT-GENERATION INFRASTRUCTURE AND SERVICES

8. LEVERAGE FEDERAL INVESTMENT IN INFRASTRUCTURE AND CITY DEALS TO INCENTIVISE THE DELIVERY OF NEXT-GENERATION INFRASTRUCTURE.

City Deals are the principal mechanism for delivering on the Federal Government's Smart Cities Plan.

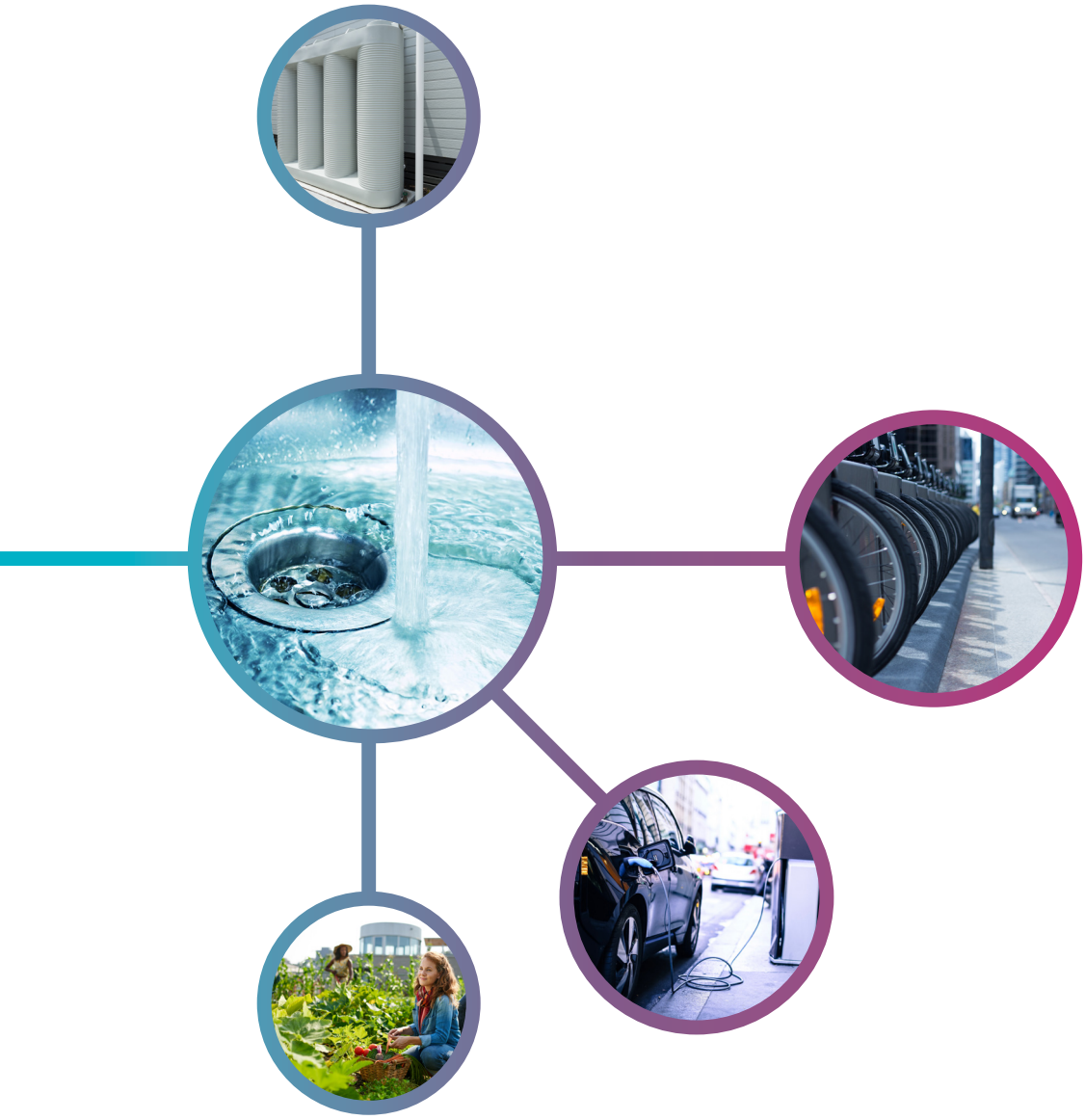
These deals are designed to be a partnership between the three levels of government and the community to work towards a shared vision for productive and liveable cities.

Open Cities Alliance recommends all City Deals include a requirement to build Next-Gen infrastructure and services.

Next-Gen infrastructure and services include clean, fast-charging networks for electric vehicles, localised renewable energy generation and storage, shared mobility facilities and services, recycled water, and waste reuse and recycling - built into new housing and industrial developments.

These types of Next-Gen utilities have huge transformative potential, and the Federal Government can play a crucial role by ensuring all new projects are funded through the City Deal program build for the future.

Incorporating a next-generation utility and mobility criteria into City Deal funding will secure investment in future infrastructure and fledgling markets that are emerging.



9. **EXPAND THE SCOPE OF THE ELECTRIC VEHICLE STRATEGY** TO INCLUDE INTEGRATED MOBILITY AND ENERGY DEMAND MODELLING.

Open Cities Alliance recommends integrating mobility solutions such as carshare, docked bike share, and e-scooters, with its Electric Vehicle Strategy.

An integrated mobility approach will deliver an increase in active transport and all the associated health benefits. It will also drive down emissions, congestion, and air pollution in cities and suburbs.

To support the sustainable rollout of Electric Vehicles in Australia, the Federal Government needs to work with industry, State and local governments on developing a smart, clean two-way grid of the future.

On their own, EVs and private autonomous vehicles will fail to address chronic congestion created from an ever-growing excess of privately-owned vehicles.

Creating a societal shift now towards sharing these assets while prioritising walking, biking, and scootering will ensure Australian cities successfully transition to a sustainable, smart future.

Australia needs regulatory and policy settings that increase the personalisation of transport choices for customers, rewarding people, and communities that seek shared or autonomous mobility solutions.

Despite the proven benefits of shared mobility, there exists very little consideration among government planners and infrastructure agencies about the growing importance of alternative transport, including shared mobility, in reducing the overall car dependency and ownership rates in Australia.

For example, one EV can replace the emissions of one petrol vehicle, while one share vehicle can replace the emissions of ten petrol vehicles.

BUSTING CONGESTION

THE COST OF CONGESTION WILL DOUBLE TO

$40 BILLION IN 12 YEARS

Infrastructure Australia

1 SHARE VEHICLE

REPLACES THE EMISSIONS OF

10 PETROL VEHICLES

GoGet

VEHICLE AIR POLLUTANTS

LINKED TO **CARDIOVASCULAR & RESPIRATORY DISEASE, LOW BIRTH WEIGHTS & MORTALITY**

NSW Health

COMMUTING >6 HRS PER WEEK

IS LINKED TO A DECLINE IN MENTAL HEALTH

University of Melbourne

OPEN CITIES ALLIANCE POLICY

This policy platform has been developed to help overcome existing policy and regulatory failures and enable innovative Next-Gen utility and mobility models.

Industries already are leading the delivery of this transformation, with proven technologies currently contributing to new markets for Next-Gen utilities and services across Australia.

But many Australians remain locked out of these markets, being denied the benefits directly because of outdated policy, legislation, regulation, and tariff structures. These market structures are not able to keep pace with industry leadership and innovation.

We recognise decisive action is needed both from industry and government, in consultation with consumers and communities.

The formation of the Open Cities Alliance reflects our members' commitment to working collaboratively with and across governments to see our vision realised.

These policies identify many opportunities and present a range of solutions, but do not claim to have all the answers.

They form a new and ongoing conversation with policymakers and regulators about how, together, we can realise the benefits of Next-Gen infrastructure and services for families, businesses, communities and the environment.

The advice in this policy platform is directed at all federal political parties.

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October 2019

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