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CHAIRMAN'S MESSAGE

It's my pleasure to welcome you to *Partnerships 2019*.

Over the course of my career, I have seen the world change and the infrastructure sector evolve with it.

Technology has reshaped consumer behaviour, the structure of our cities has been fundamentally altered, and the way we plan and invest in infrastructure has evolved – for the better.

Change is inevitable and we should welcome and embrace it. That is why we must remain firmly focused on the future as a sector, and why we have chosen the *Future of Infrastructure* as this year's *Partnerships* theme.

Over the course of the day, we will hear Australia's leading political, public service, and business figures share their insights on how the infrastructure landscape is changing.

State treasurers' Dominic Perrottet and Tim Pallas will discuss their experience at the forefront of reform. Both Treasurers' have been leaders in liberating capital from existing assets to fund substantial infrastructure programs. We ask if state-led reform is the only avenue for future progress, and what the next wave of reforms may be.

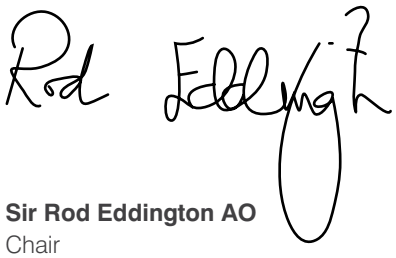
I'm delighted that my friend and former Infrastructure Partnerships Australia Chair, the Hon Mark Birrell joins Michael Brennan, Ailie MacAdam, and I for this years' respected leader's discussion where we will focus on long-termism and the opportunities ahead with returned governments in NSW, Victoria and Federally.

Through today's program we'll also hear from the CEO of Infrastructure Australia, Romilly Madew AO on where she sees her organisation and the nation heading.

Later in the day, we will hear about the evolution of end-user engagement in infrastructure, the increasingly influential role of behavioural science in decision-making, how we safeguard critical assets from cyber security threats, and the future of social infrastructure. We will then close out the day by considering where to next in the energy sector.

I hope over the course of the day we provoke and challenge your thinking about the future of infrastructure and instigate further discussion on how, as a sector, we may confront the inevitable changes ahead.

Thank you again for joining us for *Partnerships 2019*.



Sir Rod Eddington AO
Chair
Infrastructure Partnerships Australia

THE CHANGING FACE OF AUSTRALIAN TRANSPORT INFRASTRUCTURE

Sammy Isreb | Division Director, Macquarie Capital
Ivan Varughese | Head of Infrastructure & Energy ANZ, Macquarie Capital

As parts of Australia engage in a transport infrastructure building boom, unprecedented population growth and changes to technology are making future-proofing assets more important than ever. Yet, changing government and consumer expectations are also making this more challenging.

With this in mind, constructing and managing transport infrastructure assets capable of standing the test of time means contractors, operators, maintainers, investors and financiers must embrace the changing face of transport infrastructure and be prepared to consider their investments through the lens of a service provider rather than simply as infrastructure providers. This, in turn, means they must be prepared to accept changing risk positions and devise new solutions that cater to customer outcomes and technological advances.

LOOKING TO HISTORY TO ADDRESS THE CHALLENGES OF THE FUTURE

The challenges posed by changing expectations around infrastructure are not insurmountable. In fact, the past provides one of the most relevant examples of how to future proof infrastructure effectively.

The Sydney Harbour Bridge was officially opened in 1932 after six years of construction. Designed as both a rail and road crossing, it was devised and built at a time when the entire state of New South Wales had a population of just 1.3 million[1] and private car ownership was a fraction of what it is today.[2] Despite this, the bridge's engineers allowed for eight car lanes, two rail lines and two pedestrian or cycle walkways.

This foresight has meant the Sydney Harbour Bridge remains a vital cog in Sydney's transport network, even though the city is more than four times the size it was when the bridge was completed.

In 2016, it was taking almost twice the number of road journeys as the city's only other harbour crossing, the Sydney Harbour Tunnel, and remained the only method for Sydney's trains to cross the Harbour to the northern suburbs and beyond.[3]

THE INFRASTRUCTURE BOOM MEETS BOOMING POPULATION

Given the rate of population growth in Australia – particularly in its two largest cities, Sydney and Melbourne – anyone involved with infrastructure must accept that their long-term assets are likely to have to eventually move many more people than when first completed.

Sydney's population of 5.2 million residents is expected to swell to anything between 8.5 million and 11.2 million by 2066, according to the Australian Bureau of Statistics' forecasts.[4] Melbourne, which currently has a population of 4.94 million, is growing even faster and should overtake Sydney as the country's largest city by 2026 if current trends continue.[5]

Without investment in transport infrastructure in these cities, where most commuters still drive to work, travel times could increase and have a detrimental impact on liveability as well as the cities' and therefore Australia's economy.[6]

1. Australian Historical Population Statistics, Australian Bureau of Statistics, 2016 **2.** 'Long-term patterns of Australian public transport use', Australasian Transport Research Forum 2011 Proceedings **3.** Charting Transport, Traffic volumes on Australian toll roads, September 2016 **4.** Population Projections, Australia, Australian Bureau of Statistics, 2017 **5.** Based on rate of growth from 2017/18, Regional Population Growth, Australia, Australian Bureau of Statistics, 2017/18 **6.** 'Stuck in Traffic: Road congestion in Sydney and Melbourne,' The Grattan Institute, 2017

To this end, Australia's Federal Government has pledged to invest $A100 billion in transport infrastructure over the 10 years from FY2019-20 and much of this will go towards improving transport connections in Sydney and Melbourne. The New South Wales and Victorian state governments have also allocated another $A65.71 billion and $A33.65 billion respectively to building transport infrastructure in these two cities in the four years to FY2021-22.[7]

Even though building transport infrastructure is an expensive undertaking, governments have the potential to recoup their investment by monetising revenue once the asset is built. This makes transport infrastructure different to many forms of public expenditure.

For example, given the market will not fully value demand risk in a greenfields context, governments can take the ramp-up risk and once the transport infrastructure is in steady-state operations, seek to sell the revenue stream from tolls to private sector owners and operators. Case in point, the private sector is already contemplating future monetisation by the Victorian government for Melbourne's North East Link project,[8] which will be procured as a Public Private Partnerships (PPP).

THE ROLE OF PUBLIC PRIVATE PARTNERSHIPS

Both state and federal governments are likely to call on PPPs to deliver much of this infrastructure. This remains one of the preferred methods of procurement for governments in Australia. Not only because they allow risk transfer to the private sector but also because they are able to deliver a level of budgetary certainty while also tapping into private sector innovation.

Current major projects such as packages within the wider Sydney Metro and elements of Brisbane's Cross-River Rail are being delivered through this method, while upcoming projects such as the Melbourne-to-Brisbane Inland Rail (Gowrie to Kagaru section) and Melbourne's North-East Link will go down the same path.

However, winning contracts and making them profitable will come down to more than just price. Increasingly, infrastructure builders will be expected to take the same holistic, consumer-focused approach to infrastructure that governments are adopting.

For instance, under the business requirements for the PPP-designated parts of the Sydney Metro, the system had to be designed for future growth. But the quality of the transport experience also had to be improved and urban development had to be "served and stimulated".[9] All of this is a long way from simply constructing a rail network cheaply and efficiently and then having the trains run on time.

LESSONS FROM NEW ZEALAND

For an example of where expectations on infrastructure participants are headed, we only need to look across the Tasman Sea to New Zealand. There, one of the key characteristics of the PPP model is to incentivise the delivery of specified service outcomes and penalise non-performance.

For projects such as Wellington's Transmission Gully Motorway and Auckland's Puhoi to Warkworth Motorway, customer-focused expectations are reflected in a series of performance criteria, which include:

- Minimising the time that the motorway (or specific lanes) is not available, including measurement of the free flow of vehicles on the road.
- Safe travel outcomes, the performance of key interchanges, environmental outcomes and customer satisfaction.

The terms of the PPP contract also provide for considerable financial penalties in the event that a safety issue is identified.[10]

In other words, future-proofing a contract means a shift from simply building and maintaining to also considering safety, efficiency and ongoing customer service.

7. Australian Infrastructure Budget Monitor 2018-19, Infrastructure Partnerships Australia **8.** Victoria State Government, Treasury and Finance **9.** 'Final Business Case Summary', Sydney Metro, City & Southwest, October 2016
10. NZ Transport Agency, Wellington Northern Corridor, PPP Project Development

THE CHANGING FACE OF AUSTRALIAN TRANSPORT INFRASTRUCTURE (CONTINUED)

TECHNOLOGY, EVS AND CHANGING CONSUMER PATTERNS

As PPP contracts tend to typically involve operating an asset for between 15 and 30 years, future-proofing also requires taking account of technological and demographic shifts.[11]

This is no easy task: Melbourne and Sydney were between 65 per cent and 75 per cent of their current size and Australia's entire population was almost a third smaller. People are living longer and retiring later in life.

On the technology front, rapid developments in electric vehicles offer some insight into what to expect. Governments around the world have announced ambitions to make sure anywhere from 30 per cent to 100 per cent of private cars sold will be EVs by 2030. Some scenarios forecast as many as 250 million EVs on the road by this time compared to around five million today.[12] There is also likely to be an increase in around-the-clock commercial traffic, as people become accustomed to shopping online for more of their daily needs and deliveries take place off-peak and overnight.[13]

Meanwhile, ride sharing apps and autonomous vehicle technology could see private travel begin to compete with public transport on price – potentially leading to more traffic on our roads.

Although, it should be remembered that each of these trends could also be managed by a growing ability to track and maintain data, and then use it provide a better service and plan better outcomes. So long, of course, as any privacy concerns can be addressed.

SUCCESS IN A RAPIDLY-CHANGING WORLD

In short, any designer, builder or operator of transport infrastructure faces many of the same uncertainties around emerging technologies and a growing population that the builders of the Sydney Harbour Bridge faced around 90 years ago. And, while these may be happening more rapidly, we may also have the technology to address them more easily.

Most importantly, success for any participant in the transport infrastructure industry will come down to how well they can assess risk and deliver assets that continue to meet changing customer and government expectations about what should be delivered. That comes down to taking a far-sighted and flexible approach that accounts for uncertainties and puts transport users at the centre of key planning decisions.

CASE STUDY: TRANSFORMING THE PUBLIC TRANSPORT NETWORK IN SOUTH EAST QUEENSLAND

Cross River Rail Tunnel, Stations and Development PPP

- **Opportunity**
  South East Queensland is growing, with an extra 1.9 million people expected by 2036.[1] To accommodate this rising population, the region needs a rejuvenated rail network to ease congestion and improve accessibility for those travelling to and from Brisbane's CBD.
- **Actions**
  Macquarie acted as exclusive financial adviser, Over Station Development adviser and debt arranger to the Pulse consortium[2] for the Cross River Rail (CRR) Tunnel, Stations and Development Public Private Partnerships (PPP), which is the largest of three packages as part of the broader CRR project. The project includes 10.2km of new rail including 5.9km of twin tunnels and four new underground stations in Brisbane.
- **Outcomes**
  - » Will support up to 7,700 jobs during its 5-year construction period
  - » Enables a turn-up-and-go transport system across South East Queensland
  - » Pulse created a variety of rail passenger profiles and undertook 'day-in-the-life-of' assessments for each user profile to ensure the design responded across the entire passenger spectrum
  - » Once operational, CRR will build capacity to enable 18,000 more seats into Brisbane during morning peak and will reduce road users on key feeder roads into Brisbane
  - » Each of Cross River Rail's high-capacity stations will generate unique opportunities for urban renewal, economic development, the revitalisation of inner-city precincts and new employment opportunities

1. Building Queensland Business Case', Building Queensland, 2017
2. Pulse consortium is led by CIMIC Group companies, Pacific Partnerships, CPB Contractors, and UGL with international partners DIF, BAM and Ghella.

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11. 'Reimagining Public Private Partnerships', PWC Australia, Oct 2017 **12.** 'Global EV Outlook', IEA, May 2019 **13.** 'Urban Commercial Transport and the Future of Mobility,' McKinsey & Company, September 2017

LONG-TERM SUSTAINABILITY IS TAKING OFF

Bronwyn Corbet | Director – Institutional, ANZ

Airlines are one of the world's major carbon producers. Airports, however, are not. It may surprise that a business model reliant on aviation doesn't face the same emissions challenge – but that doesn't mean the most successful airports ignore carbon pollution.

For Adelaide Airport (AAL), the gateway to South Australia, the motivation to keep track of and ultimately decrease their environmental footprint came from shareholders, customers and their bottom line.

"If we're not able to look after our environment [and] work with our community constructively… then we're not going to be here in the long term," says Brenton Cox, General Manager Corporate at Adelaide Airport.

Supported by a relationship spanning decades, ANZ and Adelaide Airport worked together to develop Australia's first sustainability linked loan (SLL). The loan was grounded on a sustainability rating by independent company Sustainalytics with targets then agreed to by the bank and AAL.

If AAL demonstrates an improvement on these targets and the rating, the cost of the debt is reduced.

"It was certainly a robust discussion around AAL's sustainability performance on the targets over time which brought the two of us closer," says ANZ Head of Sustainable Finance, Katharine Tapley. "We viewed that [deal] as a partnership between ANZ and AAL around stewarding more sustainable development."

Tapley says consumers are showing greater interest in and becoming more picky about where their goods and services come from, particularly millennials.

"They are a generation significantly more ethically minded than any generation that we've seen before," she says.

AAL has installed a significant rooftop solar panel system and invested in a storm water runoff trial with SA Water to improve airside greenery - leading to lower temperatures and reduced fuel burn.

"We're certainly looking for the next challenge," says Cox. "There are little exciting things we can show to demonstrate leadership that helps in our backyard and ends up having a flow on effect."

Cox says the beauty of the SLL was that it came from a long-term understanding between the bank and the airport: "In many ways that's what sustainability is all about - it's not transactional. It's about a partnership that transcends individuals and transcends a profit motive."

"Personally, I have found partnering with AAL fantastic – they have a strong South Australian focus and they love our community."

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A BRIDGE TO SMART TECHNOLOGY

Marco Assorati | Executive Director Asia Pacific, Salini Impregilo

There is a construction site in Italy that offers an example of the kind of smart infrastructure that Australia could adopt as it strives to meet the changing needs of its burgeoning cities.

Amid the cranes and trucks on a dry riverbed near the port of Genoa on the Ligurian coast, a series of piers are slowly rising to support the viaduct that will eventually replace the Morandi Bridge, which collapsed in 2018.

Designed by Renzo Piano, the famous Italian architect behind the One Sydney Harbour project, the replacement bridge will be fitted with the latest in technology that will allow it, in one way or another, to take care of itself.

This kind of independence that technology can bestow upon infrastructure is one the themes reviewed by the Economist Intelligence Unit (EIU) in a report promoted by Salini Impregilo. Entitled '*Flexible cities. The future of Australian infrastructure*', it speaks of the country's need to build smarter, more flexible infrastructure in order to be able to accommodate the changing needs of future generations. This is otherwise known as future-proofing: preparing for whatever the future might have in store. "Building flexibly means thinking and building differently," says the report. "New technological capabilities make it easier to embrace new designs and adapt traditional assets for tomorrow's needs."

The EIU report cites examples that can already be found in Australia, such as the sewage network in Sydney where a robot inspects ageing pipes for signs of corrosion. It sends back signals and images of problem areas to workers above ground who then dig at the exact location where the pipes are to be repaired or replaced.

Robots will also be deployed for the upkeep of the replacement bridge in Genoa once it is completed. They will carry out structural inspections and maintenance of the solar and acoustic panels, minimising the risk that human workers would face by performing the task. The robots will run along a track that covers the entire length of the wind barrier the panels will be fixed to.

The solar panels will not only power the lights along the bridge for safer night driving but also the cameras and sensors like accelerometres and extensometres. These will be installed throughout the structure to monitor its soundness as it supports traffic, year after year. The information that they will transmit will go to a database that could help in the design of future bridges.

Inside the replacement bridge's steel structure will be a system that dehumidifies the air to avoid corrosion of the materials and limits any possible damage that could be caused by the salty sea air.

The simplicity of the design partly reflects the growing trend towards modular construction, in which a structure is erected using pre-fabricated parts that are the same shape and size. The external dimensions of the piles on which the piers rest use climbing formworks with a 4.5-metre pitch. The external dimensions of 9.5 metres by 4 metres are identical at every span. By using only one type of external formwork, it quickens the pace of work in a notable way. The fact that the inside of the pile is made with a mono-cellular caisson also contributes to speeding up the work.

Although the structure appears simple, it will evoke the form of a boat hull floating in the air. "It will look like a ship moored in the valley," explains Piano. Piano's design is being brought to life by infrastructure group Salini Impregilo and Fincantieri Infrastructure, part of ship building group Fincantieri - which also includes Seastema and Cetena, who are developing the smart technologies created for the new Genoa bridge.

As indicated in the EIU report, the deployment of smart technology has already taken hold in Australia. "The link between investment in infrastructure, the adoption of technology and improved quality of life is playing out across Australia," it says. "New tools, from data to drones, are extending the life-span of buildings and networks. By adopting these solutions, stakeholders are more prepared than ever to future-proof cities."

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VICTORIA'S BIG BUILD

Victoria is currently in a transport construction boom with $57 billion being invested into 119 major road and rail projects. There is also significant planning underway for several projects that will transform the way Victorians travel.

The Victorian Government's investment can be seen all over the state as country roads are rebuilt, regional rail lines are revived, and smart technology is used to manage motorways.

New modern trains and trams will continue being built, new rail lines added to growth areas creating a turn-up-and-go metropolitan rail system.

GROWING WITH THE COMMUNITY

People want to live in places that work well for them – where it's easy to move around and stay connected to jobs and each other.

It's why Victoria is one of the best places in the world to live, study and do business, with the fastest growing economy in the nation. People can easily navigate our cities and regions, and it is the logistics hub for South-East Asia thanks to two major airports and well-located ports.

As Victoria's population grows to eight million by 2050, keeping people and products moving isn't just a demographic challenge, facilitating an extra 10 million journeys a day on the transport network represents a significant logistical challenge.

TRANSPORT INFRASTRUCTURE PROJECTS

The Major Transport Infrastructure Authority is planning for Victoria's future transport network needs now by:

- building the Metro Tunnel to untangle the City Loop so more trains can run more often;
- removing 75 dangerous level crossings with 29 already gone for good;
- upgrading every regional passenger train line in Victoria;
- creating an alternative to the West Gate Bridge with the West Gate Tunnel;
- building Victoria's biggest road project, North East Link, to complete the missing link in our freeway network;
- upgrading some of Melbourne's busiest freeways including the M80 and M1;
- upgrading priority roads in Melbourne's outer west, north and south-eastern suburbs;
- developing an Airport Rail Link to connect the airport to all metropolitan and regional lines; and
- planning for new electrified lines in the west and faster, high-capacity rail for regional cities.

MORE CONSTRUCTION, MORE JOBS

These projects combined with many more local road upgrades and public transport improvements, mean more jobs for Victorians. The massive overhaul is creating tens of thousands of jobs across a range of sectors from construction and engineering to human resources and administration.

Victorians can work in private industry with contract partners or be involved in the public sector. These opportunities include at least 10 per cent of apprentices, trainees and engineering cadet roles.

For more information visit, bigbuild.vic.gov.au

UITP 2021 IS COMING TO MELBOURNE!

Melbourne, Australia will play host to the 2021 UITP Global Public Transport Summit (6-9 June 2021). UITP has 130 years of history behind it, and the summit is the world's biggest event dedicated to sustainable mobility.

It is the first time in more than 25 years that this pillar event will make its way to the Southern Hemisphere. Melbourne 2021 presents a fantastic opportunity for businesses across transport, sustainability and emerging technologies across the globe to connect with international partners, encourage investment in the region, and build cross-industry relationships. Melbourne 2021 presents strong global business opportunities.

For more information email Melbourne2021@ptv.vic.gov.au

Two state-of-the-art tunnel boring machines – named Bella and Vida – will build the twin tunnels for the West Gate Tunnel Project. Construction is underway, with the new road opening in 2022

FOR MORE INFORMATION PLEASE VISIT
https://bigbuild.vic.gov.au/

CEMENTING A CLEAN FUTURE

Matthew Brennan | Head of Sustainability, Transurban

As governments and industries around the world grapple to address climate change, one of their greatest challenges will be managing the increasing demand for services and infrastructure in response to population growth.

Australia's infrastructure boom is set to continue over the near-term as it prepares for unprecedented population growth. According to global ratings agency Standard & Poor's, Australia's annual transport infrastructure spend will have risen 120 per cent, from $10 billion in 2013 to $22 billion by 2022.

In delivering this pipeline, not only will the operational greenhouse gas emissions generated over the life of an infrastructure asset need to be considered, but importantly, also the embodied energy and emissions associated with the use of carbon-intensive materials such as concrete, steel and asphalt during construction.

Cement, a key component of concrete, accounts for 90 to 95 per cent of concrete-related emissions with the production process requiring the transformation of limestone into lime at temperatures up to 1400°C. On average, 0.87 tonnes of carbon dioxide are emitted to manufacture just one tonne of cement.

The greenhouse gas emissions produced from cement production exceed that of the world's car fleet, accounting for approximately seven to eight per cent of all global emissions according to the International Energy Agency. If left unchecked, cement production may impact international efforts to keep global warming well below 2°C in line with the United Nations' Paris Agreement, the agency has warned.

Recognising its role in the global effort to tackle greenhouse gas emissions, Transurban set an emissions reduction target, aligned to international goals, to achieve a 52 per cent reduction in Scope 1 (fuel usage) and 2 (electricity) emissions by 2030, compared to 2016 levels. It is now looking at ways to reduce Scope 3 emissions linked to its supply chain, including the greenhouse intensity of concrete and other materials it uses in infrastructure construction.

In the past year, detailed supply chain analysis has allowed Transurban to report comprehensive Scope 3 emissions for the first time and forms the basis of ongoing engagement with its supply chain to build long-term partnerships and reduce the carbon intensity of the business.

One of these partnerships is with climate change think tank, Beyond Zero Emissions (BZE), which conducts research into how Australia's industry sectors can achieve a zero-emissions economy.

BZE CEO Vanessa Petrie said the group's research had found that Australia had an enormous opportunity to become a world leader in zero carbon cement, reducing emissions and building strong and durable infrastructure.

In 2017, BZE released *Rethinking Cement*, which presented a number of strategies enabling the delivery of a zero-carbon cement industry in Australia within 10 years.

Since then, Transurban and concrete manufacturer, Boral, have worked closely with BZE to conduct additional research to look for practical steps to reduce cement-related greenhouse gas emissions associated with urban motorways.

Transurban plans to make its full suite of findings public and will work with industry to transition to the use of low-carbon cement and concrete.

One of the key recommendations is to use less cement content and introduce higher proportions of supplementary materials and fillers into concrete. Supplementary materials that can be used in cement include clay, ground limestone, fly ash, and slag – a by-product of steel making.

Due to Australia's reliance on coal-fired power over the last century, the country now has more than 400 million tonnes of stockpiled fly ash that could, through reprocessing, be used to make high replacement cement-based binders as well as geopolymer binders for concrete. When all coal-fired power stations cease operations, there will be enough fly ash to supply over 20 years of domestic cement production.

Utilising renewable energy where possible when producing cementitious and supplementary materials will further reduce emissions.

Another opportunity available to reduce the amount of cement used is to design structures that use the resource more efficiently. For instance, by using flexible formwork and 3D printers, concrete can be used in more complex shapes that achieve the same strength outcomes while reducing the overall amount of material used.

Transurban acknowledges that changing the way concrete is produced and used will be challenging with communication and engagement required to overcome potential concerns regarding strength and long-term durability when using alternative materials.

Environmental Product Disclosures (EPDs) for concrete products will be an increasingly important tool to enable the comparison of the environmental impacts of different products. As EPDs for concrete products become increasingly available, purchasers will able to make informed choices when evaluating different products in the market.

"We're seeing a lot of climate leadership coming from the corporate sector, so it has been exciting working with Transurban and Boral to develop practical solutions that will transform cement for a zero carbon world," Ms Petrie said.

Aside from the work with BZE, Transurban is already making positive steps towards reducing cement-related greenhouse gas emissions. Transurban's tender response processes require prospective contractors to minimise the environmental impacts of construction and to detail how they will reduce the carbon intensity of materials used.

Reductions in the embodied emissions in materials is also rewarded through the Infrastructure Sustainability Council of Australia's rating scheme, another Transurban major project requirement.

These steps have already led to lower carbon emissions from concrete used on Transurban's projects compared to the global average, with average emissions from recent projects (Logan Enhancement Project, Gateway Upgrade North and NorthConnex) achieving 0.255 tonnes of carbon dioxide per cubic metre of concrete.

Transurban's NorthConnex project in Sydney (pictured) is substituting up to 60 per cent of the cement content in certain mix designs with recycled by-products such as fly ash, which is expected to reduce emissions by 64,000 tonnes of carbon dioxide.

Similarly, the West Gate Tunnel Project in Victoria will substitute more than 30 per cent of Portland cement for supplementary cementitious materials across the project to drive emissions reduction.

The latest BZE and Transurban report, *Rethinking cement use in Australian urban motorways* will soon be available and its recommendations shared with industry over the coming months.

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ACTIVE ASSET MANAGEMENT – A CRITICAL COMPONENT OF INFRASTRUCTURE PROJECT SUCCESS

Justin Bailey | Regional Managing Director – Asia Pacific, John Laing

The greenfield infrastructure sector is one of the most challenging environments to work in. Around the world, there is a constant need for new or upgraded transport, social and energy infrastructure to support population growth and the changes in the way we live and work.

These infrastructure projects are bid in highly competitive markets, see significant risk transfer to the private sector, and as they become more complex their design and construction phases are getting longer. It is no surprise then that some privately financed projects have hit challenges in achieving the anticipated delivery timeline and budget, producing potentially conflicting objectives of governments, contractors, financiers and communities.

It has become clear that what these projects really need is more than just a 'lowest price' approach. The PPP model and its industry participants are constantly evolving this approach in order to deliver these complex infrastructure assets. A key component of this evolution needs to be a greater role for active asset management and collaboration from the equity investors in a project.

WHAT MAKES GREAT ACTIVE ASSET MANAGEMENT?

Active investors like John Laing see a significant opportunity to influence project performance. The ability for equity partners to actively manage an asset occurs at various levels, including through board representation and the secondment of individuals to the project company established to deliver the project. Active asset management is about being embedded through all stages of a project and it is essential that this role starts prior to financial close.

Key examples of active asset management are:

- Fostering a collaborative 'one-team' approach within a project that requires the project company, the client, the design and construction contractor and the operator and/or maintainer to think on a best for project basis
- Ensuring positive and open stakeholder relations at all times; this is particularly important during times of dispute where the equity investors need to step in and actively bring all parties together
- Bringing balance, objectivity and a sensible approach to the design development process
- Ensuring all parties look to finalise valid variation claims in a timely manner
- Being the party that actively works to move all project partners towards common ground during delivery challenges
- Being an active participant and co-ordinator in the resolution of commercial issues
- Proactively helping our contractor partner(s) to de-risk the construction programme, and
- Managing the implementation of major augmentations where requested by the client

ACTIVE ASSET MANAGEMENT – THE CHALLENGES

- Projects are becoming more complex, so asset managers must be increasingly specialised, adaptable, responsible and involved earlier in the project lifecycle.
- Project companies can end up in blurred governance arrangements, so roles and responsibilities between the project company and its subcontracting partners must be clear.
- Long-term projects need to be protected against changes in asset management personnel meaning individuals need to be incentivised around project performance.
- Project companies need to be able to demonstrate value for money; active asset management needs to show its value across the industry.

John laing
making infrastructure happen

ENSURING ACTIVE ASSET MANAGEMENT IS THE NORM

When governments issue tenders for large infrastructure projects, their expectation should be (and typically is) that the chosen bid will be efficiently and actively managed. Increasingly, we are seeing more of our clients embed contractual requirements in tenders to ensure equity investors and project company teams actively play a role in managing the project. However, in addition to contractual requirements, we would advocate for the provision of active equity asset management to be a more prominent component in client bid evaluation criteria.

The aim of a project company team is to help ensure the project is successful for all participants and needs to be considered by the industry in this way. Too often we see the project company budget being seen as a drag on the economics of a bid – whilst making the budget as thin as possible may decrease the overall cost of the bid, inevitably this means that the project company will be far less capable to undertake the role that it needs to play. Again, this issue can be mitigated through better calibrated bid evaluation criteria.

John Laing works on an active asset management basis – we invest our own balance sheet meaning we must own project success or failure. Further, we only begin earning our return when the project is complete, so it is in our interests to help ensure success. Through a heritage in delivery of 145 privately financed projects around the world, we have developed and nurtured asset managers with in-depth knowledge and a desire to work in partnership with all stakeholders – from our delivery partners to the end client and the local community. We have seen this approach work in practice, and are building a network of trusted, like-minded partners across all our sectors, who have a similar commitment to completing successful projects that deliver for all stakeholders. More and more, we are seeing our global partners look to John Laing with the expectation that we will actively contribute to the success of a project.

"Our ability to have an active and positive influence on complex infrastructure projects is based on our desire to see every project succeed. Our experienced asset management team working at Board level positions and within project companies has been able to play important roles in navigating complex issues and resolving challenges across the delivery of some of Australia's most complex PPP projects including Sydney Light Rail, New Royal Adelaide Hospital, Perth Stadium and New Generation Rollingstock. This pro-active approach is critical to the delivery of projects that respond to public need and deliver value to all stakeholders."

FOR MORE INFORMATION PLEASE CONTACT

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THE FUTURE OF AUSTRALIA'S TELECOMMUNICATIONS SECTOR

Mike Mrdak AO | Secretary, Department of Communications and the Arts

Picture the year 2030. We are living in an age of global hyper-connectivity. All Australians have access to affordable and reliable ultra-high speed broadband. Smart devices permeate our homes, businesses and communities. Personalised virtual assistants help organise our lives, monitor our wellbeing and anticipate our needs while intelligent IT systems underpin both private and public sectors to help make sense of data, automate processes and increase productivity.

Is Australia ready to take its place in this futuristic environment? The short answer is yes. Our world-class telecommunications sector is engaged with these changes and much has been done to prepare for this fast approaching digital world.

THE INCREASING CONTRIBUTION OF TELECOMMUNICATIONS

With a direct contribution to Australia's GDP of less than 3%, telecommunications may appear to be unimportant, but that isn't the case. Communications infrastructure has long been recognised as a critical enabler of Australia's economic and social activity and this has only increased in recent years.

Many of our industries are already so heavily reliant on communications services they could not function without them. Most sectors rely on communications to employ workers, maintain supply chains, provide goods and services and compete internationally. Almost half of everything Australia produces requires communications as an input. Today, this is equivalent to some $730 billion in final goods and services. The modern economy and contemporary society are inconceivable without communications.

As connectivity transforms our industries, our telecommunications sector's footprint is expanding at an unprecedented rate and showing no signs of stopping.

COMPETITION AND INVESTMENT HAVE SERVED AUSTRALIA WELL

In this rapidly changing environment, the role that government plays needs to be more flexible than ever before.

For most of the 20th century, telecommunications services were provided by the Australian Government on a monopoly basis. Over the 90s, Australia opened its telecommunications market to competition and the role of government shifted from network owner, service provider and administrator to policy maker and regulator.

This competitive marketplace enabled Telstra, Optus and Vodafone to drive the unprecedented growth of mobile technology, with the fifth generation (5G) now being rolled out. This has provided extraordinary mobile coverage to more than 99% of Australia's population and 31% of our huge landmass.

THE NATIONAL BROADBAND NETWORK AND THE WIDER MARKET

In 2009 the Government embarked on one of the nation's largest infrastructure projects – rolling out high-speed broadband to all Australian premises. In a country as vast and sparsely populated as Australia, this was no small undertaking and not something the market was going to deliver on its own, particularly in regional areas.

Significant consumer benefits have flowed since the rollout of the National Broadband Network (NBN) commenced, with the speed and data allowances for typical broadband services improving significantly and the real price consumers pay, taking into account inflation, steadily dropping. Consumers now have access to an extensive choice of broadband plans being offered by a broad range of retailers, including a number with a strong regional focus.

The NBN is on track to be completed in 2020, making Australia the first continent where every home and business has access to ubiquitous broadband which delivers the speed and data needed to fully participate online. With the NBN nearing completion, the focus shifts to making sure Australia gets the benefit of this ubiquitous connectivity.

TAKING ADVANTAGE OF NEW TECHNOLOGIES

Given the relentless change in this sector, we must avoid barriers that would hold back innovative new technologies that can further boost productivity and improve our standard of living. 5G is a good example of this. The rollout of 5G is expected to create new business opportunities, lead to the production of new goods and services, improve the efficiency of existing business practices and take the Internet of Things (IoT) to a new level. It promises new applications of cloud services, machine-to-machine technologies, broader artificial intelligence services, augmented and virtual reality platforms, and mobile commerce.

5G represents a transformative step change from previous generations of mobile technology and could deliver productivity improvements that contribute up to $2000 to Australia's GDP per capita by 2030. Recognising its potential, in 2017 the Government released its first strategy to support the technology. This includes providing timely access to spectrum, actively engaging in global spectrum harmonisation work, streamlining equipment deployment rules and establishing a 5G Working Group for industry-government collaboration. These actions will help Australia continue to capture the benefits of the communications revolution.

PAVING THE WAY FOR THE FUTURE

As the last few decades have shown, it is impossible to accurately predict the future. If anything is certain, it is that the number of connected devices and people will keep increasing and the amount of data being generated, transported and consumed will continue to grow. These two phenomena alone mean we need an industry that can, and will, keep investing. This requires a regulatory environment that supports long term investment. It also requires policy settings that not only encourage commercial investment but also address the need for investment in less commercial areas. The importance of digital services to all aspects of business and life makes universal availability of telecommunications services vital now and into the future.

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AUSTRALIA POINTS THE WAY TO A DECENTRALISED ENERGY FUTURE

Elias Abou-Saba | Vice President, Macquarie Capital
Nick Carter | Senior Vice President, Macquarie Capital
Brian Morris | Division Director, Macquarie Capital

The triple challenge of improving sustainability, reliability and price is helping shape new responses to old issues in global energy markets. One powerful example is the growing interest in, and appetite for, more decentralised energy production.

While our future energy networks will still require large-scale power plants, including fossil fuel-powered plants, we believe these will increasingly be complemented by networks of distributed energy resources (DERs) bound together in virtual power plants (VPPs).

This shift, which will be driven by continued technological improvements and cost reductions in DERs, should create a new asset class in VPPs – one with diverse opportunities for asset owners and developers. It will also provide real benefits for energy consumers, giving them greater discretion over how and when they consume energy, and how much they pay for it.

HOW AUSTRALIA'S ENERGY LANDSCAPE COULD BENEFIT FROM DISTRIBUTED NETWORKS

One market leading the way in this area is the Australian energy market. BloombergNEF forecasts that by 2035, as much as 33 per cent of Australia's capacity will sit behind the meter rather than on the transmission network. This is significantly ahead of forecasts of 18 per cent in Japan, 17 per cent in Germany, 15 per cent in Europe and 10 per cent in the United States.[1]

This statistic is perhaps why Australians are taking up PV solar at an impressive rate. According to the Clean Energy Council, 1.55 gigawatts (GW) of rooftop solar was installed in 2018 and more than one-in-five Australian homes now host rooftop solar.[2] This puts the country in a unique position when it comes to the amount of DERs already in the grid.

Meanwhile, the cost of producing a unit of solar energy via PV solar in Australia is amongst the lowest in the world – thanks to a combination of abundant sunshine, comparatively large rooftops and government policy settings such as feed-in-tariffs and small scale technology certificates (STCs), that promoted small scale solar uptake.[3]

And yet, an official report by the Australian Competition & Consumer Commission (ACCC) has estimated that the country's electricity prices are among the highest, rising an average of 44 per cent in real terms in the decade to 2018.

Costs can vary significantly between states and territories.[4] Notably, South Australia's energy costs are equivalent to those of the most expensive markets in Germany or Denmark. However, unlike these jurisdictions, South Australia's prices are not artificially inflated by a "green tax". Other factors are at play to varying degrees across other Australian states. Some of these are outlined below.

1. BloombergNEF, 2019 **2.** Clean Energy Australia Snapshot, Clean Energy Council, 2018 **3.** 'FactCheck Q&A: Is Australia the world leader in household solar power?', The Conversation, 28 March 2016. **4.** 'Restoring electricity affordability and Australia's competitive advantage', Australian Competition & Consumer Commission, June 2018

AN AGING NETWORK WITH A CHANGING BUSINESS MODEL

A significant factor in Australia's high prices is that the country's energy network is aging. Fossil fuels still account for around 85 per cent of Australia's energy supply.[5] However, this amount is shrinking, as the country's aging coal-fired power plants (the majority of which were built 30 to 50 years ago)[6] are gradually closed and not replaced.[7] More recently, failures in two significant fossil-fuel power plants, Mortlake and Loy Yang, have brought more attention to this issue.

But as more renewables come online, it is not anticipated fossil fuel plants will disappear immediately, it is more that the model for baseload coal is changing.

Solar and wind power can only be generated in certain conditions. If the sun doesn't shine or the wind doesn't blow, they can't produce energy. This means, for instance, that South Australia now generates a large portion of its energy from intermittent renewables – including around a quarter of it from rooftop PV – but it still requires other energy sources and technologies to fill the gap, one of which is large scale energy storage.

THE TYRANNY OF DISTANCE IN AUSTRALIA'S ENERGY NETWORKS

Another defining characteristic of Australia's energy grid is the geographic size of the country compared with its population: Australia is the world's fourth least densely populated country.[8]

To help overcome this challenge, strong network infrastructure was built to connect fossil fuel plants to load centres. The same is true for large-scale renewables and energy storage, which tend to be located far from load centres and where few people live.

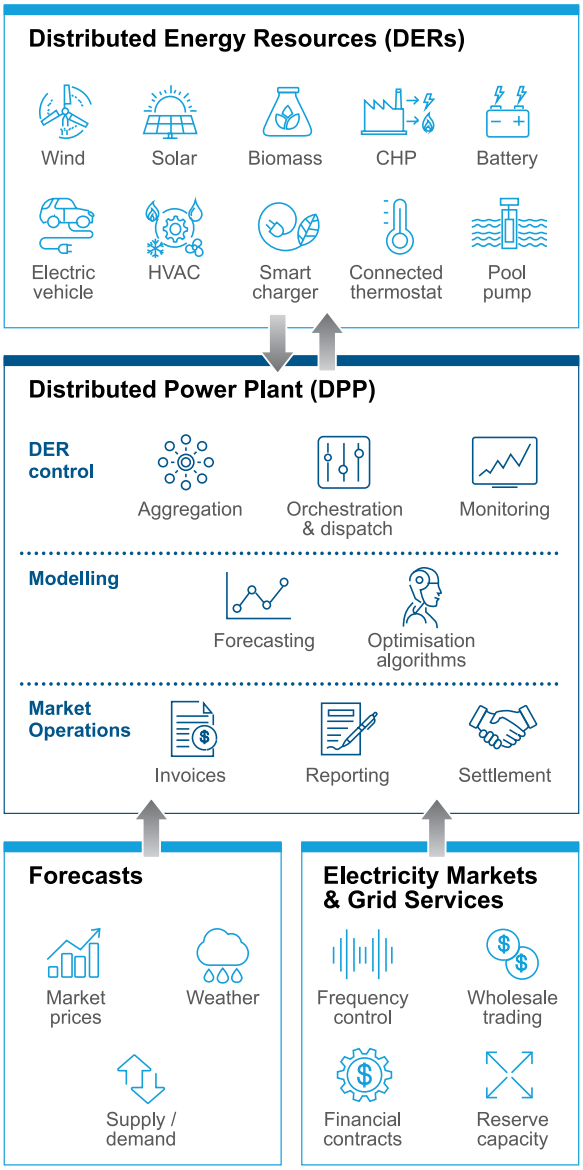
The result is that it remains expensive to transport energy from its point of generation to the point at which it is needed. It also means that Australia's vast transmission networks are becoming increasingly inefficient due to increasing congestion and transmission losses.

However, constructing the same level of infrastructure for renewables and energy storage is a hugely expensive task and one with no small degree of risk. Identifying 'no regrets' investments is a difficult task when technology is changing so rapidly.

HOW VPPs CAN HELP SOLVE THESE CHALLENGES

VPPs could provide part of the solution to some of the significant challenges when it comes to price and reliability. This is because they are deployed at the location where the majority of the energy will be consumed and utilise existing distribution networks to deliver the remainder of the generated energy. This is made possible through the use of cloud-based software which combines multiple DERs into a fleet that can be centrally orchestrated, bid and dispatched.[9]

Figure 1: Overview of Virtual Power Plants



Source: Macquarie Capital

5. Australian Government, Department of Environment and Energy **6.** 'Australia's Power Stations: Is there a generation gap?', Australian Energy Council, 16 March 2017 **7.** 'New report grapples with the economics of coal closures', Energy Council of Australia, 14 June 2019 **8.** The World Bank Data **9.** Electricity grids and modelling, Virtual Power Station case study, CSIRO Research

AUSTRALIA POINTS THE WAY TO A DECENTRALISED ENERGY FUTURE (CONTINUED)

For instance, in Japan, which has been suffering from critical supply and demand imbalances since the Fukushima nuclear accident in 2011, VPPs are being explored as a way to help the power grid cope when demand surges. While this is still in the demonstration phase, the country intends to build the world's largest energy-storage based power plant by 2022.[10]

In the United States, Macquarie has acquired a 50 megawatt (MW) portfolio of distributed battery storage systems from AMS over approximately 100 sites in the Los Angeles area. The batteries assist the local grid in supplying large load commercial and industrial customers. It can reduce peak demand by up to 10 MW within minutes of an automated signal from the grid operator. In 2018, its first full year of operation, the VPP delivered an extra 2 GWh to the city's grid.[11]

Back in Australia, the South Australian Government has teamed up with Tesla and an energy provider to take the VPP to a whole new level. Over three phases, it is developing a VPP that comprises more than 50,000 homes, all of which will generate energy through solar panels and store it in battery systems.[12] The first two phases have been completed, with the government having funded the installation of solar-producing and storage capacity at 1,100 housing trust-owned homes. In the final phase, it will do the same for another 49,000 private and public homes.[13] Operating at full scale, the VPP could generate 250 MW and store 650 MWh.

VPP offerings will also present new capital outlay structures, where customers may pay for a portion of the VPP equipment and services under an agreement with providers who in turn will pass on some of the additional value created to customers.

THE OPPORTUNITIES IN DISTRIBUTED NETWORKS

Australia's energy providers already understand the opportunities of new capital outlay structures. Almost all major electricity companies now sell and install solar panels, inverters and batteries direct to consumers. This allows them to tap into a new source of revenue and provides them the ability to potentially serve customers at a lower cost of energy than through traditional methods. Many of Australia's major retailers have also deployed their own VPP pilot programs, with at least one announcing that it will expand its VPP network following early successes.[14]

On the other side of the equation, VPPs offer consumers greater control over where their energy comes from, when and how they use it and ultimately how much they pay.

Meanwhile, for investors, the companies that develop these technologies could potentially represent a compelling investment opportunity. So too could VPPs themselves, given that their funding, revenue and business models will likely be different to those of traditional power plants –potentially making them a whole new asset class, with a different risk profile and different returns to anything currently available in the energy infrastructure market.

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10. 'AutoGrid Announces Major Virtual Power Plant Agreement with Japan's ENERES Co., Ltd', Autogrid, 17 June 2019 **11.** AMS Virtual Power Plant Delivers 2 GWh Of Grid Services', PR Newswire **12.** 'South Australia's Virtual Power Plant', Government of South Australia **13.** 'Public Housing Tenants: Virtual Power Plant', Government of South Australia **14.** 'Customers reap rewards through AGL Virtual Power Plant', AGL website

CAN A SKILL SHORTAGE HAVE A SILVER LINING?

Laura Howard | Director – Infrastructure Advisory, EY
Steering Committee Member – Future Infrastructure Leaders, Infrastructure Partnerships Australia

Even if you don't work in the transport or infrastructure sectors you cannot miss the infrastructure boom across the Eastern seaboard. New roads, tunnels, and public transport projects abound, creating excitement in the community. At the same time, there's a growing expectation that the project pipeline will keep building and that the scale and speed of project delivery will increase.

But when you discuss the infrastructure boom with those in the know, the topic of worsening skills shortages is bound to come up across multiple dimensions:

- capability shortages – lack of workers with specific skills and expertise that impact on key areas of the infrastructure workforce e.g. rail systems, signalling engineers;
- capacity shortages – insufficient numbers of workers with the relevant skills, creating general capacity issues across the sector affecting different stages of delivery e.g. civil engineers, electricians; and
- experience shortages – lack of workers with high levels of experience as senior managers and decision makers e.g. project managers with over 10 years' experience.

The experience shortages are particularly concerning given the current lack of transferability of skills between sectors. Given the critical nature of these roles, there is increased risk that these shortages will impact the delivery of infrastructure projects.

Market insights have highlighted the infrastructure workforce is rapidly ageing. A key driver for this is the difficulties associated with attracting and retaining younger workers in the industry.

But is it all doom and gloom? For me the shortage offers great opportunity to invest and work together to develop the industry - using today's projects to create a legacy for future generations, driving the long-term sustainability of the infrastructure workforce.

The interrelated and multi-faceted nature of the skills shortage and associated challenges means that a coordinated and collaborative approach is required. Industry, government and training providers need to work closely together to address the labour market challenges that have arisen.

Systemic interventions could be considered to:

- increase the attractiveness of the transport sector – communicating the skills, experience and learning pathways across projects and employers to high schools and university students;
- increase flexibility for the workforce – promoting a culture of flexible working arrangements and work /life balance in the industry to keep pace with current trends and expectations;
- invest in skills and retention – providing more opportunities and easier pathways for workers to enter the industry and develop a broader range of skills that are easily transferable across not just the transport sector, but other industries as well. This is of particular importance as technology will drive convergence between sectors, roles and jobs in the future, making them more fluid and less siloed;
- modernise the industry - taking advantage of technological advances to help improve the overall productivity of the industry such as digital construction techniques;
- develop flexible, industry aligned education and training offerings – initiatives to modify existing education and training courses to meet the needs of the growing infrastructure skills demand. For example, develop short courses to meet industry needs, including to enable up-skilling and cross-skilling. These can be targeted towards workers in the ageing workforce, declining sectors and social procurement categories; and
- support greater capability development - initiatives to enable and encourage industry to sustainably develop long-term capability of its workforce, including through Government policies and mandatory requirements in contracts.

LET'S NOT FORGET THE NEXT SKILLS SHORTAGE...

Maybe it's just human nature but we don't seem to be very good at foreseeing the coming shortages until they are upon us. While the current infrastructure boom is causing a range of skills shortages, we should also think beyond today's problems to take action and address the long term sustainability of our infrastructure workforce.

So let's all look beyond the next project, next annual report or next budget cycle. Let's position the industry for the long term. Let's start thinking about the potential skills gaps of the future so we can develop the talent now and open up the industry to people who are not at this point considering it as an option.

INFRASTRUCTURE PARTNERSHIPS AUSTRALIA'S FUTURE INFRASTRUCTURE LEADERS

To help address skill shortages and to develop future talent in the infrastructure sector, Infrastructure Partnerships Australia has worked with members to create the Future Infrastructure Leaders program. The program and associated event series aims to create a multi-disciplinary network of young professionals across both the public and private sectors.

Importantly, the event series focuses not only on providing opportunities for young professionals to network with peers, but also for Future Infrastructure Leaders to meet senior members of the infrastructure sector.

Future Infrastructure Leaders events have been held in Sydney and Melbourne and have engaged both established and emerging infrastructure leaders. The event series has examined topics such as career journeys in infrastructure and how we can attract and retain infrastructure professionals. The program also saw the addition of a Future Infrastructure Leader of the year award to the National Infrastructure Awards.

SPEAKER PROFILES

The Hon Tim Pallas MP

Treasurer of Victoria

Tim Pallas was elected to the Victorian Parliament in 2006 where he serves as the state member for Werribee and as Treasurer of Victoria, a role he has held since 2014. He is also the Minister for Economic Development and Minister for Industrial Relations. Tim's previously served as a Minister in the Brumby and Bracks governments, holding portfolios including roads, ports, and major projects. As Minister for Roads, he delivered the EastLink, oversaw the M1 Upgrade, the construction of the Deer Park Bypass and Geelong Ring Road, completed the upgrade of the Calder Freeway to improve links to Bendigo, and was responsible for commencing the Peninsula Link project on the Mornington Peninsula. In the major projects portfolio, he was responsible projects including the development of AAMI Stadium, the Melbourne Convention and Exhibition Centre, the Melbourne Recital Centre, and Melbourne Theatre Company's auditorium. Prior to entering Parliament, Tim served in roles with the Federal Firefighters Union, Storemen and Packers Union, and later as Assistant Secretary of the ACTU, and as Chief of Staff to former Premier, Steve Bracks.

The Hon Dominic Perrottet MP

Treasurer of New South Wales

Dominic Perrottet is the Treasurer of NSW and Deputy Leader of the NSW Liberal Party. He has served as Treasurer since January 2017. Dominic previously served as the Minister for Finance, Services and Property under former Premier, Mike Baird. As Treasurer, Dominic is driven by the belief that responsible fiscal management is the key to delivering better services and infrastructure. His budgets have been characterised by strong surpluses and record investment in new productive infrastructure, all while maintaining NSW's coveted triple-A credit rating. He is a firm believer in governments making better use of public assets, and oversaw the final stages of NSW Government's highly successful Rebuilding NSW asset recycling program, which generated almost $30 billion in proceeds for investment into new productive infrastructure across NSW. He is an outspoken advocate for reform, instituting the state's first ever Productivity Commission and Chief Economist to drive a new economic agenda for NSW. He also recently launched a landmark review of Federal Financial Relations to increase the autonomy and self-reliance of the states.

Marco Assorati

Executive Director – Asia Pacific, Salini Impregilo

Marco Assorati is the Operations Regional Director South East Asia and Oceania for Salini Impregilo. In this role, he leads projects and development across the region for Salini Impregilo. With over 20 years' experience, and a qualified civil engineer, Marco has undertaken roles including as a Company Director and General Operations Manager, managing concurrent multi-million-dollar projects in Nigeria and Ethiopia. He has also served in several roles covering delivery, business development and tendering activities across Australia, New Zealand, Malaysia, Thailand, Papua New Guinea, Viet Nam, Laos, Singapore, Indonesia. Most recently, Marco has been responsible for design and construction of a metro trail line, bridging, tunnelling and stations across Australia.

The Hon Mark Birrell

Patron, Infrastructure Partnerships Australia

Mark Birrell was the founding Chair of Infrastructure Partnerships Australia and is a full-time non-executive director. With an extensive background on public and private boards, he is currently Chairman of PostSuper and an independent non-executive director of Transurban. He is the immediate past President of the Victorian Chamber of Commerce & Industry. Mark has served in leadership roles across the transport and logistics sectors, including as Chairman of the Port of Melbourne Corporation and Infrastructure Australia, Deputy Chairman of Australia Post, and Leader of the Infrastructure Group at Minter Ellison Lawyers. Mark and has a strong public policy background through his earlier service as a Victorian Cabinet Minister.

Michael Brennan

Chair, Productivity Commission

Michael Brennan is Chair of the Productivity Commission. Previously, Michael was Deputy Secretary, Fiscal Group, in the Federal Treasury with responsibility for budget policy, retirement incomes, Commonwealth-State relations, social policy, and infrastructure financing. Prior to that, he was Deputy Secretary, Economic in the Victorian Department of Treasury and Finance. Michael has also worked as an Associate Director in the economics and policy practice at PwC, and as a senior adviser to Treasurers and Ministers for Finance at the State and Federal level.

Amy Brown

Deputy Secretary – Strategy & Delivery, NSW Department of Premier and Cabinet

Amy Brown is currently Deputy Secretary and Head of the Strategy & Delivery group at the NSW Department of Premier and Cabinet – a group formed to provide expert commercial, strategic and economic advice to the Premier on major and complex whole-of-government policies, programs and projects. Prior to joining NSW DPC, Amy was a Partner in PwC's Infrastructure and Urban Renewal Business, with a practice focusing on social infrastructure and housing. She's also worked in infrastructure finance at NSW Treasury, and as an infrastructure lawyer in several top tier law firms.

Cathryn Cox PSM

Executive Director – Health System Planning and Investment, NSW Ministry of Health

Cathryn Cox is currently Executive Director of the Health System Planning and Investment Branch, and the Strategic Reform Branch in the New South Wales Ministry of Health. Cathryn has extensive services and capital planning experience from roles in the previous South Western Sydney Area Health Service, NSW Ministry of Health and NSW Health Infrastructure, where she was the interim Chief Executive from December 2018 to May 2019. In recognition of her contribution to health services planning in NSW, she was awarded a Public Service Medal in the 2018 Australia Day honours list.

Adrian Dwyer

Chief Executive Officer, Infrastructure Partnerships Australia

Adrian Dwyer is the Chief Executive Officer of Infrastructure Partnerships Australia – the nation's leading public and private sector infrastructure think tank. He was appointed to the role in March 2018. Adrian served as Infrastructure Partnerships Australia's Head of Policy from 2011 until 2015, where he led major studies on road pricing reform, contracting and financing models, among others. From 2015 to 2018, Adrian served as Executive Director of Policy and Research at Infrastructure Australia – the Commonwealth Government's statutory infrastructure body.

Sir Rod Eddington AO

Chair, Infrastructure Partnerships Australia

Rod Eddington is Chairman of Infrastructure Partnerships Australia, J.P. Morgan's Asia Pacific Advisory Council and non-executive Chairman of Lion, and previously served as the inaugural Chair of Infrastructure Australia from 2008-2014. Educated as an engineer at the UWA and then Oxford University as WA's 1974 Rhodes Scholar, Sir Rod's career began in transport and aviation and he went on to become CEO of Cathay Pacific, Ansett Airlines and British Airways, before retiring in late 2005 and returning to Australia. In 2005, Sir Rod was awarded a Knighthood by the British Government for service to civil aviation, in 2012 was made an Officer of the Order of Australia (AO) for service to business and commerce and in 2015 was honoured by the Japanese Government with the Grand Cordon of the Order of the Rising Sun for his contribution to strengthening the economic relations between Australia and Japan. Sir Rod serves a member of the APEC Business Advisory Council and President of the Australia Japan Business Cooperation Committee. He also sits as a non-executive director on the Board of China Light & Power Holdings and John Swire and Sons Pty Ltd (Australia).

Ticky Fullerton

Australian Business Journalist

Ticky Fullerton is Sky News Business Editor and co-anchor of Business Weekend, Sundays at 11am on Sky News Australia. Ticky has over twenty years' experience in television at Sky News and the ABC. She was previously an investigative reporter with Four Corners, a political reporter in Canberra, and presenter for the national farming program, Landline.

SPEAKER PROFILES

Andy Haining

Investment Director, John Laing

Andy Haining is an Investment Director at John Laing, the global infrastructure originator, investor and asset manager. He is an experienced greenfield infrastructure origination specialist who leads John Laing's participation in PPP bids across both social infrastructure and transport projects as well as project financed renewable energy projects. Andy sits on John Laing's Asia Pacific leadership team and has day-to-day responsibility for PPP business development in Australia and New Zealand.

Adrian Hart

Associate Director – Construction and Maintenance, BIS Oxford Economics

Adrian Hart has nearly 20 years of economic analysis and consulting experience with BIS Oxford Economics, focusing on the infrastructure, building, maintenance and mining industries. Adrian has undertaken a wide range of consultancy projects for the public and private sectors based on his detailed understanding of construction, mining and maintenance markets, their drivers and outlooks, the range of organisations operating in this space and the issues they face. This work includes deeper industry liaison, contractor and competitive analysis, pipeline analysis, demand and cost escalation forecasting, and capacity and capability projects for the public and private sector. He also undertakes briefings and workshops for senior management, board members and industry associations, and facilitates and chairs roundtables between government and industry.

Sammy Isreb

Division Director, Macquarie Capital

Sammy Isreb is a Division Director at Macquarie Capital, leading the Australian Public Private Partnerships team. Sammy specialises in the development, financing, investment, and long-term management of PPP projects. Sammy has led many successful bids across a wide range of sectors. He is also a Director across several PPP's Macquarie Capital is an investor in and a Director of Macquarie Capital's PPP operational management business. He has significant experience in the evolution of the PPP model, including across operational and brownfields PPPs, its expansion into new markets like New Zealand, and the adaptation of market-led proposal frameworks. Macquarie Capital has been involved in several recent successful PPPs, including Cross River Rail, the New Grafton Correctional Centre, WA Schools, ACT Law Courts, and the Northern Beaches Hospital.

Berin Lautenbach

Chief Information Security Officer – Asia Pacific, Telstra

Berin Lautenbach is the Chief Information Security Officer Asia Pacific at Telstra and has an extensive and diverse background in cyber security, spanning 25 years. His more recent roles have included leading the Information Security team in GE Capital Australia, followed by establishing and leading the Security Architecture team for GE Capital globally. Berin worked for several organisations including the Australian Department of Defence, Dimension Data, National Australia Bank and GE, before joining Telstra in 2015.

Jason Loos

Deputy Secretary Commercial Division, Department of Treasury and Finance Victoria

Jason Loos is Deputy Secretary of the Commercial Division at the Victorian Department of Treasury and Finance. In this role, he is responsible for providing strategic commercial, financial and risk management advice to the Victorian Government. Activities include managing the State's balance sheet, prudential supervision of the public financial corporations, Public Private Partnerships, infrastructure procurement and investment, commercial and property transactions, and monitoring and governance of Victoria's major Government Business Enterprises. Prior to this role, Jason was the Executive Director, Infrastructure Delivery at Partnerships Victoria. Throughout his career, Jason has overseen many major projects, including the West Gate Tunnel and Melbourne Metro Tunnel projects.

Ailie MacAdam

Senior Vice President, Bechtel Corporation | Acting President, Bechtel Infrastructure

Ailie MacAdam is a Senior Vice President of Bechtel and Managing Director of Bechtel's infrastructure business in Australia. During the 30 years she has worked for Bechtel, Ailie has led major UK and US infrastructure projects, including previously working as Bechtel's Global Rail Sector Leader. Most recently Ailie was Bechtel's client relationship manager on the Sydney Metro City and Southwest and the Western Sydney Airport projects. Prior to her current appointments, Ailie served in various leadership roles including Bechtel's Managing Director for Europe and Africa, Project Director for Crossrail, and Project Director for High Speed 1 in the UK.

Romilly Madew AO

Chief Executive Officer, Infrastructure Australia

Romilly Madew AO commenced as Chief Executive of Infrastructure Australia in April 2019. Romilly was recently awarded an Order of Australia in acknowledgment of her contribution to Australia's sustainable building movement. Prior to Infrastructure Australia, she led the Green Building Council of Australia for 13 years. Romilly holds Board positions with Sydney Olympic Park Authority and Chief Executive Women, and has sat on numerous ministerial panels. Her achievements have previously been recognised with national and international awards, including the 2017 World Green Building Council Chairman's Award and 2015 International Leadership Award from the US Green Building Council. She was also named as one of the '100 Women of Influence' by the Australian Financial Review and Westpac, and is a National and NSW winner of the Telstra Business Women's Award.

Natalie Malligan

Head of Uber Air – Australia, Uber

Natalie Malligan was recently appointed as the Head of Uber Elevate for Australia, where she is responsible for making Uber's ambitious urban aviation plans a reality. She previously worked in Uber's ridesharing business as the Head of Cities for Australia and New Zealand. Prior to joining Uber, Natalie was a Manager in Bain and Company's Private Equity practice in San Francisco and Sydney. She holds a combined Bachelor of Commerce and Laws from the University of Sydney, and a Master of Business Administration from Columbia University in New York.

Brian Morris

Division Director, Macquarie Capital

Brian Morris recently joined Macquarie Capital's Australian Infrastructure and Energy team based in Melbourne. Brian comes to Macquarie with over 30 years' experience within the Energy sector and has extensive energy market origination and energy trading experience, including renewable Power Purchase Agreements (PPA). Brian has a deep understanding of energy financial markets and has worked with a number of large energy users on financial and physical grid connected and behind the meter energy management solutions. Prior to joining Macquarie, Brian worked at Schneider for 7 years where he led the Electric's Energy and Sustainability Services business in Australia, a diverse and profitable team of 75 staff focused on improving the sustainability and energy productivity of commercial and industrial sector clients. Brian was a founder and Director of Creative Energy Solutions from 2003 – 2010, the first specialist energy advisor to be awarded an Australian Financial Services License. Brian currently sits on the Board and is Chairman for the Energy Users Association of Australia.

Mike Mrdak AO

Secretary, Department of Communications and the Arts

Mike Mrdak is Secretary of the Department of Communications and the Arts, a position he has held since 18 September 2017. The portfolio has responsibility for broadband and the National Broadband Network, communications infrastructure, spectrum, communication, broadcasting and media regulation, and fostering Australian arts and culture. Prior to this role, Mike served as Secretary of the Department of Infrastructure and Regional Development, between June 2009 and September 2017. During this time, he was responsible for management of infrastructure investment, policy initiatives to increase productivity, security, safety and regulation in road, rail, aviation and maritime transport, regional development, local government, and services to Australia's territories. Mike was appointed an Officer (AO) of the Order of Australia in the Queen's Birthday 2016 honours list for his distinguished service to public administration through executive roles in the infrastructure, transport and logistics sector, and through the development of policy reform initiatives.

SPEAKER PROFILES

Rachel Noble PSM

Head, Australian Cyber Security Centre

Rachel Noble is the Head of the Australian Cyber Security Centre in the Australian Signals Directorate. Prior to taking up this appointment, Rachel was the Deputy Secretary Executive Group in the Department of Home Affairs overseeing the delivery of the Department's executive functions including media, ministerial and Parliamentary services, integrity, security, risk and assurance as well as intelligence and the countering violent extremism centre. In 2014, Rachel was promoted to Deputy Secretary, Policy Group in the Department of Immigration and Border Protection which included responsibility for trade, customs, immigration and international policy. Rachel has also held the position of National Security Chief Information Officer and Cyber Policy Coordinator in the Department of Prime Minister and Cabinet where she was responsible for improving information sharing among the national security community and coordinating whole of government policy on cyber issues. Rachel received a Public Service Medal for this work.

Rosemary Sinclair AM

Chief Executive Officer, Energy Consumers Australia

Rosemary Sinclair is the CEO of Energy Consumers Australia, a company established by the Council of Australian Governments Energy Council of Ministers in 2015 to strengthen independent consumer advocacy on national energy market matters, in particular for household and small business consumers. Rosemary is a Director of CPA Australia and a recent past Member (part-time) of the Australian Communications and Media Authority. Rosemary has many years of senior large-scale operations, communications and strategy experience in business and government across telecommunications, media and education. Rosemary has held several Directorships on unlisted company and not-for-profit Boards in Australia and internationally. Rosemary was made a Member of the Order of Australia Award in the 2018 Queen's birthday Honours List.

Lisa Tobin

Group Executive – Technology, Transurban

Lisa Tobin first joined Transurban in February 2013 as Group General Manager Technology. She overall responsibility for the technology strategy, deployment, and operation of all technology platforms. Transurban owns, develops and operates urban toll road networks in Australia and the USA. Technology plays a critical role, spanning all aspects of the business from back-office systems and customer services to roadside and tunnel infrastructure. Technology at Transurban has a unique agenda to bridge the specialised infrastructure world of operational technology with broader information technology trends such as the rise of cloud-based platforms, IoT, Data Analytics and Machine Learning. Previously, Lisa held several senior technology roles across the financial services industry focused on setting strategy and delivering technology capability to bring new business models to market.

Rebecca Wark

Chief Executive, NSW Health Infrastructure

Rebecca Wark was recently appointed as Chief Executive of NSW Health Infrastructure, having first joined the organisation in 2008. As Chief Executive of NSW Health Infrastructure, Rebecca oversees development of some of NSW's largest hospitals and public health services, leading delivery of the largest health capital works portfolio in Australia. Before NSW Health Infrastructure, Rebecca worked on significant infrastructure projects across the public and private sectors. Her experience is diverse with Rebecca's first public sector role being planning and delivering venues for the Sydney Olympics. Following this Rebecca has held a number of roles with responsibility for delivery of facilities across education, justice, and health.

Matthew Warren

Author of *'Blackout'*

Matthew Warren has spent the past 25 years inside Australia's energy and environmental policy debates. He is the author of "Blackout - How is energy rich Australia running out of electricity?". Matthew has worked for the electricity, renewable energy and coal industries. Most recently he has been the Chief Executive of the Australian Energy Council, the Energy Supply Association of Australia and the Clean Energy Council. He was also environment writer for The Australian and worked for the New South Wales Minerals Council. A professional journalist and economist, he currently writes a regular column on electricity for the Australian Financial Review.

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