

New South Wales Treasury Corporation
NSW Sustainability Bond Programme

Creating a sustainable future

Annual Report 2019



tcorp

ABOUT THIS REPORT

This is the inaugural annual report of the NSW Sustainability Bond Programme and we will continue to report on an annual basis over the life of the programme. The report provides an overview of bonds that were issued under the programme over the past year, our governance and certification, and where the funds we raised were earmarked to, including dollar amounts and details of each project.

An electronic copy of this report is available at www.tcorp.nsw.gov.au.

FEEDBACK

We welcome your feedback on our report to help improve future editions – please contact Naomi Wilkie, Senior Economist at the Office of Social Impact Investment on +61 2 9228 4321 and the Head of Marketing at TCorp on +61 2 9325 9325.

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Cover photograph: Bike riders at sunrise,
Central Coast, New South Wales, Australia.

Photographer: Steve Christo

Year in review

Largest green bond issued in Australia

- Issued the inaugural 10-year A\$1.8bn Green Bond in November 2018
- Transaction is the largest single green bond issue to date in the Australian dollar market

Partnered with NSW Government family

- Close collaboration between TCorp, NSW Treasury, the NSW Office of Social Impact Investment and the NSW Department of Planning, Industry and Environment to further the aims of the NSW Sustainability Bond Programme
- The close partnerships extended to invaluable contributions from Sydney Metro, Transport for NSW and Sydney Water
- Partnerships that helped to deliver the NSW Sustainability Bond Programme and launch the Green Bond

Contributed to NSW communities and people

- Earmarked three assets to be refinanced by the Green Bond: the Sydney Metro Northwest; the Newcastle Light Rail; and the Lower South Creek Treatment Programme

Diversified our investor base

- 57 investors in total
- 15 new investors for TCorp, improving the diversification of the investor base and helping to mitigate future funding risk

Fully certified, aligned to state government climate policies and goals

- Implemented the NSW Sustainability Bond Framework to underpin the credentials of further issuances
- Aligned to the International Capital Market Association's Green Bond Principles, Social Bond Principles and Sustainability Bond Guidelines
- Incorporated an independent assurance of the programme
- Two products have been certified by the Climate Bonds Initiative – the November 2028 Green Bond in October 2018, and the Green Term Deposit in August 2019
- Consistent with the NSW Climate Change Policy Framework, State Infrastructure Strategy, Future Transport Strategy and NSW Premier's priorities

The November 2028 Green Bond won three industry awards

- Best Sustainable Finance Deal, *FinanceAsia* Achievement Award 2018
- Australian Sustainability Deal of the Year, *KangaNews* Awards 2018
- Australian Dollar Rates Bond Deal of the Year, *KangaNews* Awards 2018

Message from the Chair, NSW Sustainability Committee

The NSW Sustainability Bond Programme is the culmination of close collaboration between agencies across the NSW Government family, bringing together people with foresight, passion and commitment to deliver tangible benefits for the community.

While our first issuance from this programme—a green bond—was heavily oversubscribed, that alone was not the key measure of its success. This highly-targeted bond came along at the right juncture, with the NSW Government looking to fund sustainable projects of significance.

At the same time, investors have become genuinely interested in allocating capital to opportunities that provided a better environmental outcome. TCorp gauged market support for this first green bond issued in November 2018 and it was enthusiastically received. We believe it has put green bond issuance in Australia on a new footing with respect to scale; writing A\$1.8 bn made investors here and offshore stand up and take notice and as of the publishing date of this report, it is the largest single green bond in Australian dollars in this market.

MEETING REQUIRED OUTCOMES

A goal for TCorp is to diversify our investor base. While a benchmark bond issuance usually attracts around 35 investors, there were 57 investors in the Green Bond, 15 of which were new to TCorp.

Through our partnerships and close collaboration with NSW Treasury, the NSW Office of Social Impact Investment and the NSW Department of Planning, Industry and Environment, robust governance structures have been established to support this programme.

As a 'use of proceeds' bond, we must demonstrate how the funds raised are allocated to meet the required outcome. In the case of this first Green Bond, certified under the Climate Bonds Initiative, we are reporting back on the environmental and climate aspects of each asset. At the same time, we are also excited to see the emerging social benefits.

For example, the Sydney Metro Northwest project which commenced operations in May this year, has resulted in reduced commuting times. In addition, accessibility was addressed for commuters with mobility issues. For Sydney Water, the funded water and wastewater services not only provide improved sanitation, but form a major part of the organisation's remit to build resilient infrastructure in the face of climate change, using water resources more efficiently and sustainably.

So, how can we ensure we continue to deliver a high quality sustainability bond programme for NSW? While green bonds are quite developed around the world, there is a significant opportunity in putting forward social bonds, or indeed sustainability bonds (a combination of green and social). These bonds are still emerging in terms of investor appetite and understanding.

GOVERNANCE AND ASSURANCE

TCorp and its partners had longevity in mind when putting the overarching framework and governance structure in place for our programme. We have the confidence and capacity to take this programme forward over many years to come and ensure projects funded meet recognised and expected standards.

We are also proud to have created a programme consistent with best market practice, including seeking independent assurance by EY, alignment with the International Capital Market Association's (ICMA) Green Bond Principles, Social Bond Principles and Sustainability Bond Guidelines, and Climate Bonds Initiative certification.

A TRUE PARTNERSHIP

To close, I wanted to reiterate the unique and valuable partnership with the NSW Government family that underpins the programme. Through this, we have been able to achieve a level of understanding of entities, identify assets and projects, discover what can be measured in terms of outcomes, and what we may be able to do with future issuances.

These are insights we would not have been able to develop without the expert knowledge and enthusiasm from our four key agency partners and our colleagues at Sydney Metro, Transport for NSW and Sydney Water. I thank them most sincerely.

TCorp and its partners had longevity in mind when putting the overarching framework and governance structure in place for our programme

OUTLOOK

While our Green Bond has been an unqualified success, and the winner of three industry awards, it is only the beginning. We have embarked on a journey that will continue to deliver projects that meet the best possible outcomes for the NSW community. In the second half of 2019, we intend to issue a sustainability and social bond which will complement the existing general purpose bonds that we already issue.

It's important for us that we maintain a focus on due diligence around the assets, ensuring they are vetted by an assurance provider and where appropriate, undertake a certification process. We believe that quality is what will continue to attract investors in Australia and around the world.



Katherine Palmer
Chair, NSW Sustainability Committee



NSW Sustainability Bond Programme

NSW was the first Australian state to establish a sustainability bond programme enabling the issue of green, social and/or sustainability bonds. The classification is determined by the primary objectives of the underlying projects and highlights the unique collaboration within the NSW Government family.

The NSW Sustainability Bond Programme provides investors with the opportunity to be part of a more sustainable future by helping to finance projects that support positive and transparent economic, social and environmental outcomes for the community. Further, it supports Australia's ongoing commitment to meeting the United Nations Sustainable Development Goals (UN SDGs).

In November 2018, TCorp issued its inaugural 10-year, A\$1.8bn Green Bond under the NSW Sustainability Bond Programme.

As at the publication date of this report, this transaction is the largest single green bond issue in the Australian dollar market. It has also received a number of industry awards. The bond was issued under the NSW Sustainability Bond Framework, with pre-issuance and post-issuance assurance provided by EY, and certified as being compliant with the Climate Bonds Standard by the Climate Bonds Initiative.

Green, social and sustainability bonds are defined by the International Capital Markets Association below:¹

- Green bonds are any type of bond instrument where the proceeds will be exclusively applied to finance or refinance, in part or in full, new and/or existing eligible Green Projects and which are aligned with the four core components of the Green Bond Principles (GBP).
- Social bonds are any type of bond instrument where the proceeds will be exclusively applied to finance or refinance, in part or in full, new and/or existing eligible Social Projects and which are aligned with the four core components of the Social Bond Principles (SBP).
- Sustainability bonds are bonds where the proceeds will be exclusively applied to finance or refinance, a combination of both Green and Social Projects. Sustainability bonds are aligned with the four core components of both the GBP and SBP.



THE VISION

With considerable investor appetite to align capital with positive environmental and social outcomes, TCorp has an exciting vision for the programme. There are already plans for further bond issuances and we are committed to reporting on the programme's progress and results annually. Our overarching aims for the programme include:

- Leading the way in sustainability bonds and demonstrating pathways to mobilise capital in support of projects with a positive environmental and/or social outcome.
- Seeking ways for finance to contribute towards meeting UN SDG outcomes.
- Supporting the development of the wider sustainable finance sector.
- Drawing upon and contributing to global best practice in the discipline of impact and outcomes measurement, reporting, and transparent disclosure of sustainability outcomes.
- Highlighting and influencing the embedding of sustainability practices through the lifecycle of government assets and programmes.
- Inspiring innovative, cross-government solutions to the state's most pressing environmental and social problems.

Sydney Water pointed to many macro outcomes from the Green Bond:

“Sydney Water’s participation in the NSW Government’s Sustainability Bond Programme showcases the multi-faceted benefits in providing essential water and wastewater services to the people of greater Sydney. Not only do these services provide public health benefits in sanitation, but they also provide broader environmental and sustainability gains. Showing how Sydney Water is building resilience to climate change and innovating to provide efficient and sustainable resource use will help us to work towards transitioning to a low carbon and circular economy.”

Christine Turner, Principal Policy Advisor, Corporate Strategy at Sydney Water.



STRONG GOVERNANCE ESTABLISHED

Evaluation, certification and assurance are all key elements of the NSW Sustainability Bond Programme to ensure transparency and alignment with desired outcomes.

A sound governance architecture underpins the programme, and includes the NSW Sustainability Committee which is primarily guided by the NSW Sustainability Bond Framework. Oversight of the projects that are included in the asset pool and allocation of the bond proceeds is undertaken by the NSW Sustainability Committee, which is chaired and coordinated by TCorp and includes representatives from NSW Treasury, NSW Office of Social Impact Investment and the NSW Department of Planning, Industry and Environment.

The NSW Sustainability Committee is also able to draw on expertise from members of the NSW Government family to assist with the performance of its function. Validation of the robust governance frameworks and associated controls is undertaken by a third party verifier. Prior to the issue of the Green Bond, EY provided an independent assurance report confirming material alignment of the NSW Sustainability Bond Framework and nominated projects with the ICMA Sustainability Bond Guidelines and Climate Bonds Standard (including sectoral criteria).

Currently, green bonds represent only a fraction of the overall fixed income universe; our programme, which includes the recently piloted green term deposits and a sustainability and social bond to be issued in the second half of 2019, is designed to complement TCorp's overall general purpose bonds programme, which aims to raise A\$13.3bn in the 2019 financial year.

HOW THE PROCEEDS OF OUR SUSTAINABILITY BONDS CAN BE USED

The [NSW Sustainability Bond Framework](#) was jointly developed by the NSW Sustainability Committee to show how TCorp may issue 'use of proceeds' bonds in green, social and/or sustainability formats under the programme.

This framework is supported by the internal procedures, processes and controls of the respective agencies represented in the committee and details the overarching goal of demonstrating how bonds will be earmarked to finance or refinance projects and assets that:

- Deliver positive environmental and/or social outcomes.
- Align with and contribute towards meeting UN SDGs.
- Support the NSW Government's environmental and/or social objectives.

THE RISE OF GREEN BONDS – IN AUSTRALIA AND GLOBALLY

The report [Australia Green Finance State of the Market](#) by the Climate Bonds Initiative revealed that green bond issuance in Australia has increased dramatically over the past two years. Over A\$3.9bn in green bonds were written in the first half of 2019 alone, this is close to the A\$6.0bn issued in 2018, and higher than the A\$3.3bn issued in 2017. This reflects global trends, where in just under a decade, green bond issuance has grown from zero to over US\$170bn annually and over US\$500bn cumulatively, identified in [Green Bonds: The State Of The Market 2018](#) (SOTM).

The Climate Bonds Initiative research also noted that TCorp's entry into the green bond market in the fourth quarter of 2018 was a record A\$1.8bn deal, followed by Queensland Treasury Corporation with A\$1.25bn, NAB (A\$1.2bn, converted from €750mn) and Macquarie Group (A\$883mn, converted from £500mn). All told there were 35 issuances from 15 Australian entities in four currencies.

Australia was ranked third for green bond issuance in the Asia-Pacific region, behind China (US\$91.5bn) and Japan (US\$12.4bn). The top five countries were rounded out by South Korea in fourth spot (US\$6.7bn) and Indonesia (US\$4.0bn). In global green bond rankings, Australia was in 10th position at 30 June 2019.

Certification is a priority in the Australian market. The SOTM report identified that 83 per cent of all green bonds issued in Australia were certified under the Climate Bonds Standard, while EY was the leading independent verifier of Certified Climate Bonds, having assessed 15 deals (42 per cent by issued volume), including the TCorp Green Bond.

A positive impact on NSW people and communities

The programme aligns closely with NSW Government priorities to deliver projects for the benefit of the wider community in a sustainable manner, demonstrating the power and impact of collaboration within the NSW Government family.

Funding raised through the TCorp Green Bond is allocated only to projects that meet a desired environmental outcome as per its certification. In a roadshow to attract a more diverse set of investors to the programme, investor feedback indicated that delivering on environmental and climate outcomes was essential, in line with the remit of the bond; and just as important were enhanced social outcomes.

To that end, all the agencies partnering in the programme—led by the NSW Sustainability Committee—worked together to ensure the correct governance structure was in place before the first bond was presented to the market and to establish a framework that would allow for issuance of further green, social and/or sustainability bonds in future.

Proceeds raised from these bonds are allocated to finance or refinance projects and assets that have been assessed by the NSW Sustainability Committee as suitable for inclusion in the asset pool (which is non-recourse), and offer tangible environmental and/or social benefits to the people of NSW. This supports the NSW Government's stated objectives and also contributes towards helping the state meet the UN SDGs.

POLICY SPOTLIGHT: NSW AND CLIMATE CHANGE

“The people of NSW expect decisive and responsible action on climate change... No responsible leader can accept the contribution made by science but then ignore the risk posed by climate change. This is why the New South Wales Government supports the Paris target of limiting global warming to well below two degrees Celsius. It is also why we set the State a target of net zero emissions by 2050. The more immediate question is what we do now.”²

Matt Kean MP,
NSW Minister for Energy and Environment.



Bella Vista Station, photograph courtesy of Sydney Metro.

In 2016, the NSW Government set out its intentions on climate change in the NSW Climate Change Policy Framework. The framework outlines long-term objectives to maximise the economic, social, and environmental wellbeing of the state in the context of a changing climate:³

- To achieve net-zero emissions by 2050
- For NSW to become more resilient to a changing climate.

Aligning with these objectives, NSW is supporting clean energy and helping households and businesses reduce their energy bills by saving energy and preparing for the impacts of climate change.

NSW is making progress toward the 2050 target. The latest Australian greenhouse gas (GHG) inventory data shows 2017 GHG emissions in NSW were 18.2 per cent lower than 2005 levels.⁴ With GHG emissions in 2017 at 131.5 million tCO₂-e,⁵ there needs to be committed action to achieve the 2050 target. Both private and public capital will need to be put to work to transform NSW into a net-zero emissions economy. The NSW Sustainability Bond Programme enables private capital to contribute to achieving these goals.

NSW initiatives include:

NSW Climate Change Fund

The NSW Climate Change Fund (CCF) was established in 2007. The latest round of the CCF is investing A\$1.4bn between 2017 and 2022 to realise energy savings, cut power bills, support clean energy and help our communities be more resilient to climate change.⁶ Most of these programmes are now underway, with many already delivering benefits. For example, the appliance replacement offer has delivered more than 50,000 energy efficient TVs and fridges to concession card holders since August 2016. The total estimated GHG savings from CCF programmes between 2007/08 and 2017/18 is more than 28 million tCO₂-e.⁷

NSW Energy Savings Scheme

Established in 2009, the Energy Savings Scheme provides financial incentives for energy efficiency upgrades, such as installing efficient lighting or air conditioning. The Energy Savings Scheme has so far supported projects that will deliver more than 24,000 GWh of energy savings and has locked in an estimated A\$5.6bn in bill savings to 2025.⁸

Future Transport Strategy 2056

The Future Transport Strategy 2056 was launched in 2016. This ongoing, 40-year strategy works to harness technology to improve customer and transport network outcomes, including transitioning to a low emissions environment that helps deliver the net-zero target by 2050. Transport makes up around 21 per cent of total emissions in NSW – the second largest contributing sector after energy.⁹ Expanding the accessibility and attractiveness of public transport can encourage commuters to take public transport instead of private vehicle journeys. As a result, road congestion and emissions will be reduced. On average, private passenger vehicle trips produce 10 times more GHG emissions than rail and light rail in NSW.¹⁰

TCORP GREEN BOND ISSUANCE

In November 2018, we issued the largest single green bond in the Australian dollar market, valued at A\$1.8bn as detailed in Table 1.

Table 1: Description of Green Bond

Bond type:	Green
Coupon:	3.0%
Size:	A\$1.8bn
Currency:	Australian dollar
Maturity:	15 November 2028
Pricing date:	9 November 2018
ISIN:	AU3SG0001878
Lead managers:	National Australia Bank Limited (Arranger) Australia and New Zealand Banking Group Limited Merrill Lynch (Australia) Futures Limited
Assurance provider:	EY Limited
Certification:	Climate Bonds Standard Certified
Climate Bonds Standard project categories:	Low carbon transport and water infrastructure

Key characteristics of the bond issuance include:

- Guaranteed by the NSW Government.
- NSW is rated Aaa (stable) by Moody's and AAA (stable) by Standard & Poor's.
- EY has provided a pre-issuance [Independent Reasonable Assurance Report](#) for the framework and this Green Bond, confirming compliance with the criteria set by the Climate Bond Standard v2.1 and alignment with the 2018 ICMA Green Bond Principles, Social Bond Principles and Sustainability Bond Guidelines. EY has also provided a post-issuance [Independent Reasonable Assurance Report](#) in relation to this annual report and it is attached in Appendix 2.
- Met the requirements for [certification](#) by the Climate Bonds Standard Board and for Programmatic Certification under the Climate Bonds Standard.
- A [term sheet](#) with full details of this Green Bond is available for investors.
- As at 30 June 2019, TCorp's debt obligation to the pool of eligible green assets totalling A\$4.6bn, exceeds the size of this Green Bond.

Green Bond results

The Green Bond was oversubscribed by A\$767mn as detailed in Table 2.

Table 2: Results of Green Bond issuance

Total amount allocated	A\$1.8bn
Total amount of bids received at final price	A\$2.567bn
Total amount on issue	A\$2.567bn
Yield allocated	3.235%
Exchange for physical (EFP) vs 10 year futures	43 basis points

TCorp was delighted that we were able to diversify our investor base. We gained 15 new investors from Australia and around the world as illustrated in Charts 1 and 2.

Chart 1: Investor type

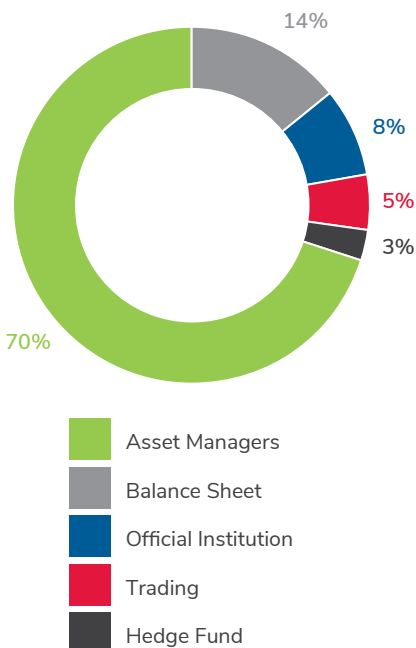


Chart 2: Geographic breakdown

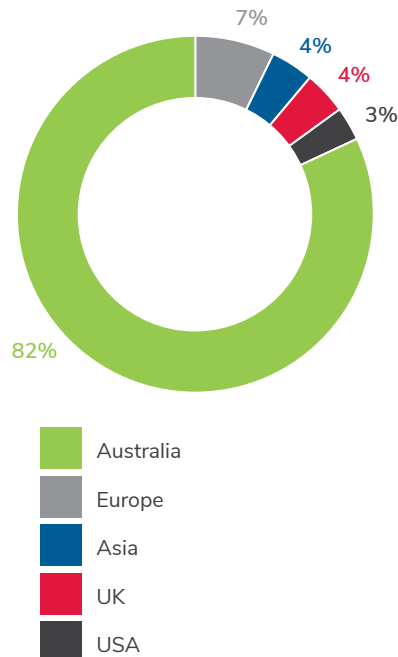
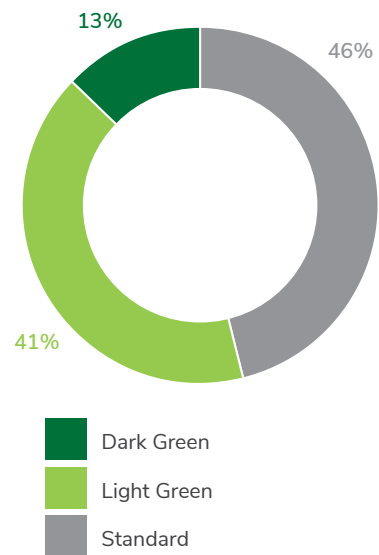


Chart 3: Mandate type



TCORP GREEN TERM DEPOSIT

TCorp's position as a programmatic issuer has enabled us to successfully pilot the issue of green term deposits to the NSW local government sector. The net proceeds from these deposits are earmarked against the same pool of eligible green assets as the Green Bond, with Climate Bonds Standard Certification received in August 2019.

A maximum cap will be applied to this product to ensure the asset pool exceeds the total size of all sustainability bonds and green term deposits on issue at any given point in time.

HOW THE PROCEEDS OF THE GREEN BOND WERE USED

The net proceeds raised through the issuance of the bond were earmarked to refinance low carbon transport and water infrastructure.

Low carbon transport

Sydney Metro Northwest



A\$1.6bn of the TCorp Green Bond has been allocated towards the Sydney Metro Northwest.

This project, worth an estimated A\$7.3bn, is the first stage of Sydney Metro – the largest urban rail infrastructure investment in Australian history. Stretching from Rouse Hill to Chatswood, it is the first fully automated metro rail system in Australia, delivering 36 kilometres of new metro rail, eight new railway stations, five upgraded stations, 4,000 commuter car spaces, and a reliable public transport service to a region with the highest car ownership levels per household in Australia. Passenger services commenced on 26 May 2019.

The design, build and operations of the Sydney Metro Northwest system addresses the likely impacts of climate change risk over the life of the railway line, and builds in appropriate resilience and future flexibility. This has been key to Sydney Metro's success in developing and implementing best practice standards on this infrastructure project, as evidenced by a 'Leading' whole-of-project Infrastructure Sustainability (IS) As-Built rating awarded by the Infrastructure Sustainability Council of Australia (ISCA).¹¹ Sydney Metro Northwest is the first major infrastructure project in Australia to achieve this.

The whole-of-project rating is underpinned by three 'Leading' ISCA IS As-Built ratings achieved by three major construction contracts, these are:

- Tunnels and stations civils – this contract achieved the highest As-Built 'Leading' rating score of 92.5 for an As-Built infrastructure project under the ISCA scheme.¹²
- Surface, viaduct and civils.
- Operations, trains and systems.

DELIVERING SUSTAINABLE INFRASTRUCTURE

“Sustainability forms an integral part of Sydney Metro's vision – to transform Sydney with a world class metro. Sydney Metro benchmarks against international best practice, and we are leading the way in Australia – shaping sustainability in the transport sector not only within government but wider industry.

Given the size and scale of our programme of works, we recognise our ability to influence industry, and set new benchmarks and standards in environmental and socio-economic spheres.”¹³

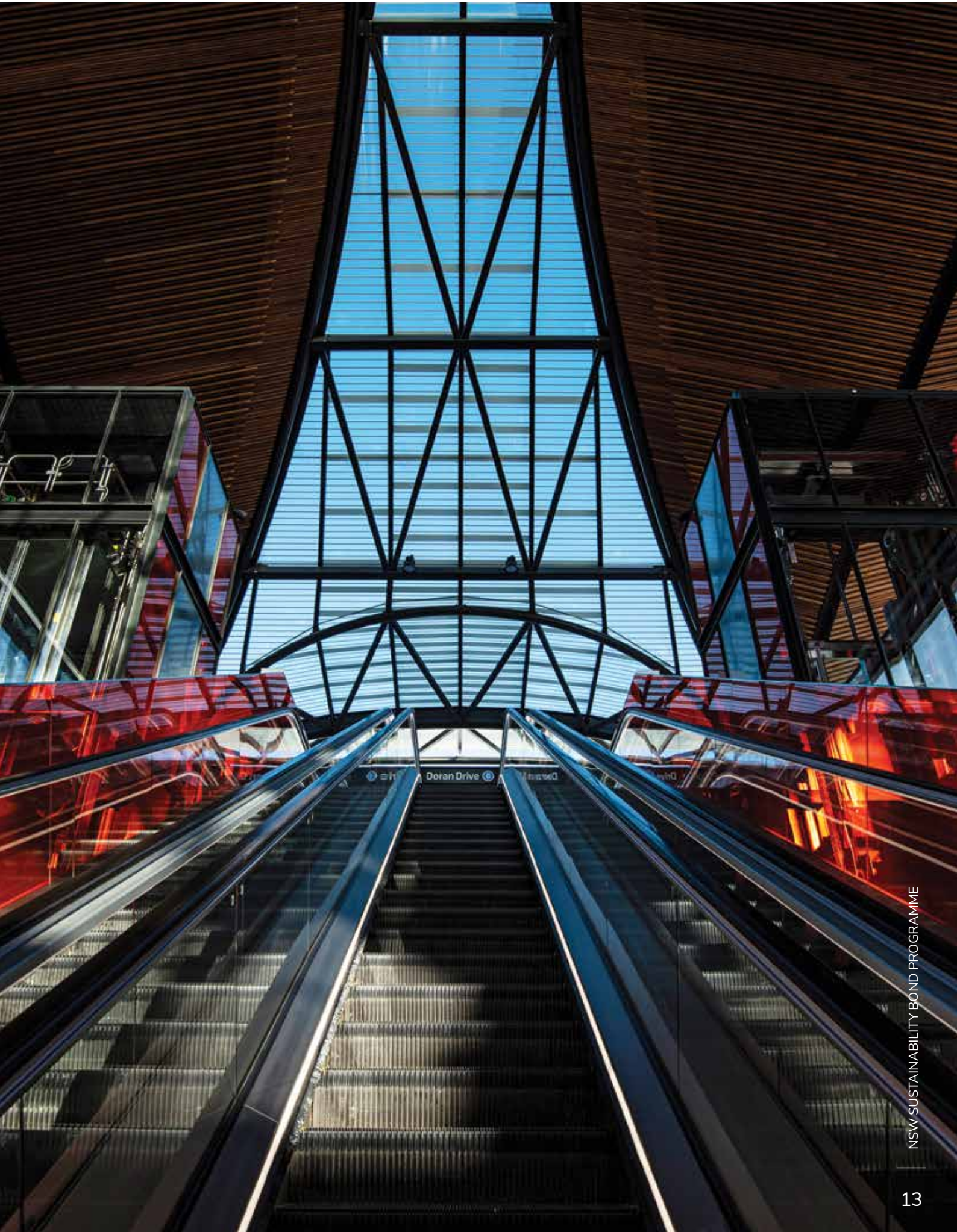
Jon Lamonte, Chief Executive, Sydney Metro.

Some key Australian first achievements include:¹⁴

- 100% offset of operational energy through a new build renewable energy project in rural NSW. Being a leader in minimising emissions and mitigating climate risk, while creating jobs and growth for regional areas.
- Fully automated rolling stock meaning the operations of the train (accelerating, stopping, etc.) is optimised to ensure minimal energy is used for traction.
- The establishment of the NSW Infrastructure Skills Centre, the first integrated infrastructure skills and employment centre in Australia and the Sydney Metro Industry Curriculum was introduced to address skills gaps.

For more information, see the [Sydney Metro Sustainability Report 2018](#).

The new Hills Showground Station, photograph courtesy of Sydney Metro.





Newcastle Light Rail



A\$100mn of the TCorp Green Bond has been allocated towards the Newcastle Light Rail.

This project is a key part of the A\$650mn programme to revitalise Newcastle's city centre and comprises a 2.7 kilometre system running from Newcastle Interchange through the central business district to Newcastle Beach.

Passenger services commenced on 17 February 2019, providing a frequent and reliable travel option throughout the city centre, connecting key activity precincts, reinvigorating Hunter and Scott Streets, and opening up great urban renewal opportunities.

The Newcastle Light Rail is the first of Transport for NSW's three light rail projects to be awarded an IS rating, receiving a Design rating of 'Excellent'.¹⁵

This recognises the project as a catalyst for sustainable urban renewal and development across the Newcastle city centre, improving community connectivity and the activation of precincts.

Newcastle Light Rail key environmental and socio-economic benefits include:

- An energy efficient and sustainable form of transport.
- Increased capacity on public transport, with frequent and reliable services.
- Improved access to the city centre stimulating urban renewal.
- Reduced road congestion, travel time and road maintenance.
- Australia's first inter-modal system.

WIRELESS LIGHT RAIL SYSTEM

“Removing the overhead wires will preserve the aesthetics of Newcastle’s heritage architecture and its unique character as light rail breathes new life into the city centre.”

Andrew Constance,
NSW Minister for Transport and Roads.¹⁶

The Newcastle Light Rail is Australia's first wireless light rail system. It uses a catenary-free operation where each light rail vehicle has an onboard energy storage system. A super capacitor and batteries on the roof of the vehicle enables it to travel wire-free.¹⁷

The Commonwealth Scientific and Industrial Research Organisation (CSIRO) acknowledges wireless light rail as a significant innovation:

“Getting rid of overhead power lines would mean the sky’s the limit for light rail. It opens the way for more design flexibility and taller trams that can carry vastly more people, all while greatly reducing construction and maintenance costs. Regenerative braking could also be used to harness the kinetic energy of slowing a tram and turn it into a sustainable power source to get it moving again.”¹⁸

Lower South Creek Treatment Program, photograph courtesy of Sydney Water.



Water infrastructure

Lower South Creek Treatment Programme: Quakers Hill and St Marys water recycling plants process and reliability renewal



A\$90mn of the TCorp Green Bond was allocated towards the Quakers Hill and St Marys water recycling plants (WRPs).

These plants service, treat, and discharge effluent within the South Creek catchment area of Western Sydney. The A\$354mn project forms part of the Lower South Creek Treatment Programme, providing new and upgraded wastewater infrastructure that will cater for growth in the area. It also incorporates new and innovative technology to improve wastewater treatment processes.

The works include replacing the existing Quakers Hill WRP with a new 38 ML/day plant, a modified 12-kilometre sludge transfer pipeline from the Quakers Hill WRP to the St Marys WRP, and a large treatment upgrade at St Marys WRP that will treat 48 ML/day

of effluent. Overall, the project will provide long-term benefits to the environment by consolidating wastewater treatment in an appropriate land use area, reduce waste production, improve water quality and enable renewable energy generation.

The Lower South Creek Treatment Programme achieved an 'Excellent' Design rating under the ISCA rating scheme, attributable to its innovative wastewater treatment technology and environmental benefits, including¹⁹:

- An estimated reduction of approximately 870,000 tonnes (42 per cent) of GHG total emissions during construction and across its lifecycle.
- On-site thermal energy recovery and electricity generation enables the project to self-supply up to 69 per cent of its electricity demand.
- Consolidation of biosolids processing at St Marys WRP via a pumped transfer system from Quakers Hill will reduce biosolids truck movements and enable increased energy generation, resulting in a smaller carbon footprint.

The two sites also contain environmental values, including native flora, fauna and Aboriginal heritage, and are managed under Property Environmental Management Plans. Wastewater flows are also transferred from these facilities to the St Marys Advanced WRP which produces recycled water for environmental flows that improve ecosystem health and value in the Hawkesbury Nepean River catchment.

Currently, neither WRPs at St Marys or Quakers Hill have the capability of generating green energy but this will soon change. These upgrades mean Sydney Water can adopt new technologies that optimise resource recovery and make the water treatment process more sustainable, effective and cost efficient. These resource recovery opportunities also contribute to a circular economy.

The new cogeneration facility to be installed at St Marys WRP will use organic matter in the sludge (biosolids) to produce an increased amount of biogas, a source of renewable energy. The increased volume of biogas will help reduce St Marys' energy costs by producing more renewable electricity onsite. Adopting new technologies that make the water treatment process more sustainable will reduce Sydney Water's carbon footprint while preparing us for a low carbon future.

What are the environmental benefits of producing biosolids?

Biosolids are used in agriculture, forestry and rehabilitation. One hundred per cent of biosolids are beneficially reused with at least 70 per cent used in agriculture.

- Minimising the discharge of solids to our oceans and rivers.
- Recycling a valuable resource that helps minimise disposal to landfill.
- Reducing the amount of chemical fertilisers used on farms.
- Producing gas that can be used to generate electricity to power treatment plants.

LOWER SOUTH CREEK TREATMENT PROGRAMME

In Sydney's west, the Western Parkland City is projected to grow to over 1.5 million people by 2056²⁰. Around 80 per cent of the Western Parkland City is in South Creek's large catchment area. Transformation of the existing landscape to meet future growth in the catchment will place pressure on the health of waterways and create challenges for managing stormwater, wastewater and floods.

The NSW Government's [Greater Sydney Region Plan \(2018\)](#) sets the vision for a liveable, growing and resilient Greater Sydney. This vision is further articulated in the [Western City District Plan \(2018\)](#), which identifies the South Creek corridor as the spine of the Westland Parkland City and the central element in its urban design and water management. The green South Creek corridor will provide parks and habitat, as well as ecological services such as nutrient capture and urban cooling capacity.

Upgrades to Sydney Water's existing Lower South Creek treatment plants are demonstrating how these principles can be achieved. Sydney Water is increasing wastewater treatment capacity and improving water recycling processes using innovative technologies including at Quakers Hill and St Marys water recycling plants.

Sydney Water is working towards a circular economy by harnessing our waste to create energy to run the plants. We are also introducing a thermal hydrolysis plant at St Marys to improve production of biosolids. Biosolids are organic products extracted from wastewater, that are used as a nutrient rich soil conditioner. Anaerobic digestion of wastewater and energy recovery will enable the project to supply most of its own electricity in future.

Improvements to the Lower South Creek treatment plants are also helping to achieve the Western City District Plan's priority of reducing carbon emissions and managing energy, water, and waste efficiently.

Reporting: 2018 Green Bond assets

The tables below outline the green assets earmarked against the inaugural Green Bond.

Projects detailed in Table 3 are either under construction or have recently started operations. Accordingly, the sustainability outcomes in Table 5 are intended to capture global principles on green and sustainability bonds. These reporting metrics contain estimates and will be

refined to include actual results once the projects become fully operational. Refer to the NSW Sustainability Bond Framework for an assessment of how these reporting metrics align with global principles.

Information on project costs have been provided by the relevant NSW government entities and NSW Treasury.

Table 3: Use of proceeds statement

Project name	Delivery partner	ICMA GBP category	Estimated project cost (A\$ mn)	Share of project financed by TCorp debt (%)	TCorp debt expended on projects as at 30 June 2019 (A\$ mn)	Bond proceeds allocation (A\$ mn)
Sydney Metro Northwest	Sydney Metro	Clean transportation	7,345 ²¹	58	4,157	1,610
Newcastle Light Rail	Transport for NSW	Clean transportation	389 ²²	90	338	100
Lower South Creek Treatment Programme: Quakers Hill and St Marys Water Recycling Plants Process and Reliability Renewal	Sydney Water	Sustainable water and wastewater management	354	100	154	90
Total			8,088		4,649	1,800

Table 4: TCorp debt unutilised as at 30 September 2019

Description	A\$ mn
TCorp debt expended on projects as at 30 June 2019	4,649
TCorp Green Bonds allocated as at 30 September 2019	1,800
TCorp Green Term Deposits allocated as at 30 September 2019	11 ²³
Net position – TCorp debt unutilised	2,838

Table 5: Sustainability outcomes

Project name	Metrics
Sydney Metro Northwest	<p>Infrastructure²⁴</p> <ul style="list-style-type: none"> – 36km of new train line constructed – 4km of bicycle path constructed – 240 bicycle parking spaces created – 1 MW solar array installed on top of Sydney Metro trains facility <p>Construction</p> <ul style="list-style-type: none"> – 20% offset of carbon emissions from construction electricity²⁵ – 96% of construction and demolition waste recycled²⁶ – ~1 million native and drought resistant plants used in landscaping²⁷ – 1,300 new sustainable jobs created²⁸ <p>Operations</p> <ul style="list-style-type: none"> – 100% offset of operational electricity needs by solar power (~134 GWh p.a.²⁹), avoiding GHG emissions by ~102,000 tCO₂-e³⁰ – ~ 6,900 tCO₂-e p.a. reduction in GHG emissions due to decrease in private vehicle journeys (at the year 2021)³¹
Newcastle Light Rail	<p>Infrastructure³²</p> <ul style="list-style-type: none"> – 2.7km of new rail line built – Capacity to transport 1,200 people per hour <p>Construction³³</p> <ul style="list-style-type: none"> – Reduction of 141 tCO₂-e (or 4% of emissions)³⁴ – 22,778 tonnes (or 35%) of waste diverted from landfill – 565 trees planted as carbon offsets <p>Operations</p> <ul style="list-style-type: none"> – 23% decrease in GHG emissions from operations (~1,100 tCO₂-e p.a.)³⁵
Lower South Creek Treatment Programme: Quakers Hill and St Marys Water Recycling Plants Process and Reliability Renewal	<p>Infrastructure³⁶</p> <ul style="list-style-type: none"> – Replacement of the existing Quakers Hill WRP with a new 38 ML/day plant – 12 kilometre modified sludge transfer pipeline from the Quakers Hill WRP to the St Marys WRP – Upgrade at St Marys WRP increasing capacity to 48 ML/day <p>Operations</p> <ul style="list-style-type: none"> – 100% of biosolids beneficially reused³⁷ – 57.9 ha area covered by sustainable land management systems in place³⁸

Awarded and acknowledged

During the 2018-19 financial year, TCorp's inaugural Green Bond won three industry awards for financial markets innovation and expertise.

FINANCEASIA ACHIEVEMENT AWARD 2018

The TCorp Green Bond was awarded Best Sustainable Finance Deal due to three key factors:

- The large deal size and long duration, which added depth and breadth to the green bond market
- TCorp's strong brand with the investment community in Australia and offshore meant the bond was oversubscribed and closed with more than A\$2.5bn in demand
- The proceeds of the transaction were allocated to low-carbon transport and water infrastructure projects.

KANGANews AWARDS 2018

Our Green Bond also received two Australian market deal awards, based on votes from market participants:

- **Australian Sustainability Deal of the Year**
- **Australian Dollar Rates Bond Deal of the Year.**

KangaNews conducts thorough and intensive polling of participants in the Australian and New Zealand debt markets and believes its awards are a true reflection of excellence in the Australasian debt markets.



About TCorp

We work in partnership within TCorp and across the NSW Government family to achieve significant financial impact over the long term to create a stronger NSW.

TCorp provides best-in-class investment management, financial management, solutions and advice to the NSW public sector. With \$107bn of funds under management, TCorp is a top five Australian asset manager and is the central borrowing authority of the state of NSW, with a balance sheet of \$75bn.

We have the same legal capacity, powers and authorities as a company under the *Corporations Act 2001* (Cth), which allows us to raise and manage money to help the NSW Government and ultimately the people of NSW. Our powers to borrow, invest and undertake financial management transactions are regulated under the *Government Sector Finance Act 2018* (NSW).

OUR MISSION

To provide best-in-class financial management, solutions and advice to the NSW Government family.

OUR PURPOSE

Created by the *Treasury Corporation Act 1983* (NSW) (Act), TCorp is the financial services provider for the NSW public sector. Our remit under the Act is “to provide financial services for the benefit of the Government, public authorities and other public bodies”.

We have a long and proud history of partnering with our clients to assist them in meeting their objectives through:

- providing finance for the government and NSW public authorities
- managing or advising on management of government and public authority assets and liabilities
- accepting funds for investment from the government and public authorities
- investing funds
- managing our own assets and liabilities.

THE FINANCIAL MARKETS BUSINESS

Established 1983, we are the central borrowing authority for NSW are responsible for raising debt in the form of bonds on behalf of the state government. TCorp issued one of the first bonds as a semi-government issuer in Australia and today, we issue bonds to generate funds for public sector agencies and manage debt of over \$62bn on behalf of our clients. We also have a strong credit rating, with major ratings agencies reaffirming the AAA credit rating for NSW following the release of the state budget.

References

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4. See page 2, *State and Territory Greenhouse Gas Inventories 2017*, Australia's National Greenhouse Accounts, Department of Environment and Energy here. www.environment.gov.au/system/files/resources/917a98ab-85cd-45e4-ae7a-bcd1b914cfb2/files/state-territory-inventories-2017.pdf
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6. See the NSW Climate Change Fund, NSW Government. www.environment.nsw.gov.au/topics/climate-change/nsw-climate-change-fund
7. See page vi, NSW Climate Change Fund Annual Report 2017–18, NSW Government. www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Climate-change/Climate-change-fund-annual-report-2017-18-180595.pdf
8. Figures provided by the Department of Planning, Industry and Environment.
9. NSW emissions, Adapt NSW. climatechange.environment.nsw.gov.au/About-climate-change-in-NSW/NSW-emissions
10. Future Transport Strategy 2056, Future Transport 2056. future.transport.nsw.gov.au/sites/default/files/media/documents/2018/Future_Transport_2056_Strategy.pdf
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13. See page 6, Sydney Metro Sustainability Report 2018, Sydney Metro. www.sydneymetro.info/sites/default/files/document-library/Sustainability_Report_Dec_2018.pdf
14. See the IS Rating program here. www.isca.org.au/Ratings-Directory/Sydney_Metro_Northwest
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16. Newcastle Light Rail goes wire free, 18 April 2017, Transport for NSW. www.transport.nsw.gov.au/newsroom-and-events/media-releases/newcastle-light-rail-goes-wire-free
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18. Supercapacitor magic, making tram power lines *disappear*, 18 June 2018, CSIROscope. blog.csiro.au/supercapacitor-magic-making-tram-power-lines-disappear/
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21. Excludes public-private financing costs.
22. Excludes Wickham Transport Interchange.
23. This amount will have an equal allocation across the three projects in Table 3.
24. IS Rating program for Sydney Metro Northwest. www.isca.org.au/Ratings-Directory/Sydney_Metro_Northwest
25. See page 40, Sydney Metro Sustainability Report 2018, Sydney Metro. www.sydneymetro.info/sites/default/files/document-library/Sustainability_Report_Dec_2018.pdf
26. Against a target of 90% based on IS Rating program for Sydney Metro Northwest. www.isca.org.au/Ratings-Directory/Sydney_Metro_Northwest
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28. Refers to new employees who have not worked for Sydney Metro during the six months prior to their start date and with no direct employment for a minimum of 26 weeks and 15 hours per week. See page 57, Sydney Metro Sustainability Report 2017, Sydney Metro. www.sydneymetro.info/sites/default/files/document-library/SydneyMetro_SustainabilityReport2017.pdf
29. Projected annual energy use of operations see Sydney Metro website. www.sydneymetro.info/article/beryl-gets-go-ahead-help-power-sydney-metro-northwest
30. GHG reduction calculated using NSW's energy emissions intensity of 0.76 tCO₂-e /MWh (estimate provided by the NSW Department of Planning, Industry and Environment).
31. Based on mode shift projections across Sydney's network wide transport system and the projected carbon intensities (national average) of rail, bus and car travel at the year 2021. See page 97 in the North West Rail Link Environmental Impact Statement 2. These estimates were derived in 2013. majorprojects.accelo.com/public/8eee33801a1ff2ed286a92ead426423e/06_NWRL_EIS_Stage_2_Chapters_14_to_17.pdf
32. For details of Newcastle Light Rail (including the Newcastle City Centre Cycleway Network Strategy, p.10), see the Transport for NSW website. www.transport.nsw.gov.au/projects/current-projects/newcastle-light-rail
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36. Information provided by Sydney Water.
37. Actual for 2019, figures provided by Sydney Water.
38. Data from the Sydney Water Property Environmental Management Plan.

Underground track laying on Sydney's new Metro North West Line, photograph courtesy of Sydney Metro.



APPENDIX 1 – INDEPENDENT REASONABLE ASSURANCE REPORT



Building a better working world

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Independent Reasonable Assurance Report to the Executive and Management of Treasury Corporation of NSW ('TCorp')

Assurance Conclusion

Based on our reasonable assurance procedures, as described in this statement as of 25 October 2019, in our opinion TCorp's bond post-issuance process in relation to its 2018 Sustainability Bond, inclusive of its Sustainability Bond Framework and nominated projects and assets, meets the project identification, project minimum criteria, management of proceeds, and reporting requirements of the ICMA Sustainability Bond Guidelines and the CBI Climate Bond Standard (inclusive of sectoral criteria) in all material respects. Further, based on our procedures, in our opinion TCorp's Impact Report meets the requirements of the ICMA Sustainability Bond Guidelines, and TCorp's self-declared criteria stated in TCorp's Sustainability Bond Framework, in all material respects.

Scope

Ernst & Young ('EY') has performed a reasonable assurance engagement in relation to TCorp's Sustainability Bond Framework, TCorp's 2018 Sustainability Bond post-issuance and TCorp's 2019 Sustainability Bond Impact Report in order to provide an opinion as to whether, as of 25 October 2019, the Subject Matter detailed below, meets in all material respects the Criteria presented below.

Subject Matter and Criteria

Subject Matter	Criteria
<p>TCorp's Sustainability Bond post-issuance process, as described in TCorp's Sustainability Bond Framework that sets out:</p> <ul style="list-style-type: none"> ▶ Policies and procedures related to the use of proceeds and management of proceeds raised from the Bond. ▶ Processes for project evaluation and selection for inclusion in the Bond. ▶ Procedures for reporting on the use of proceeds and environmental performance of the Bond. 	<ul style="list-style-type: none"> ▶ The Climate Bond Standard ('CBS') v2.1 ▶ The Climate Bond Standard Sector Eligibility Criteria for Low Carbon Transport ▶ The Climate Bond Standard Sector Eligibility Sector for Water Infrastructure ▶ The International Capital Market Association's ('ICMA') Sustainability Bond Guidelines ('SBG'), comprising the Green Bond Principles ('GBP'), and the Social Bond Principles ('SBP') ▶ TCorp's own internal policies and procedures, as documented in TCorp's Sustainable Bond Framework

Subject Matter	Criteria
<ul style="list-style-type: none"> ▶ The structure of, and disclosures within TCorp's 2019 Sustainability Bond Impact Report ▶ The asset values disclosed within TCorp's 2019 Sustainability Bond Impact Report ▶ The impact data disclosed within TCorp's 2019 Sustainability Bond Impact Report (to the extent that they were disclosed correctly) 	<ul style="list-style-type: none"> ▶ The International Capital Market Association's ('ICMA') Sustainability Bond Guidelines ('SBG'), comprising the Green Bond Principles ('GBP'), and the Social Bond Principles ('SBP') ▶ TCorp's own internal policies and procedures, as documented in TCorp's Sustainable Bond Framework

Management Responsibility

The management of TCorp ('Management') is responsible for the collection, preparation and presentation of the subject matter in accordance with the Criteria, and for maintaining adequate records and internal controls that are designed to support the Green Bond issuance process.

Assurance Practitioner's Responsibility

Our responsibility is to express a reasonable assurance conclusion as to whether the subject matter is presented in accordance with the Criteria, in all material aspects. Our assurance engagement has been planned and performed in accordance with the Australian Standard on Assurance Engagements 3000 (revised) Assurance Engagements Other Than Audits or Reviews of Historical Financial Information ('ASAE 3000').

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Level of Assurance

A reasonable assurance engagement consists of making enquiries and applying analytical, controls testing, and other evidence-gathering procedures sufficient for us to obtain a meaningful level of assurance as the basis for providing a positive form of conclusion. The procedures performed depend on the assurance practitioner's judgement including the risk of material misstatement of the specific activity data, whether due to fraud or error. While we considered the effectiveness of Management's internal controls when determining the nature and extent of our procedures, these procedures were not designed to provide assurance on internal controls. We believe that the evidence we have obtained is sufficient and appropriate to provide a basis for our conclusion.

Our Approach

The assurance procedures we undertook included, but were not limited to:

- ▶ Assessing policies and procedures established by TCorp related to the issuance of the 2018 Sustainability Bond
- ▶ Confirming eligibility of nominated projects for inclusion in TCorp's 2018 Sustainability Bond against the Use of Proceeds Criteria within the CBS, SBP and GBP
- ▶ Interviewing selected business unit and group level personnel to understand key issues related to TCorp's policies and procedures
- ▶ Reviewing selected performance information for nominated projects, and documentation supporting assertions made in the subject matter

- ▶ Reviewing the impact report and checking that its structure and disclosures met the requirements of the framework, that asset values were disclosed accurately, and that individual impact data had been appropriately transcribed from the associated links in the 'source of information'.
- ▶ Checking the accuracy of calculations performed
- ▶ Confirming internal systems and processes were functioning as indicated and obtaining supporting evidence
- ▶ Confirming the maximum potential value of debt to understand the basis and integrity for the value of the bond
- ▶ Obtaining and reviewing evidence to support key assumptions and other data
- ▶ Seeking management representation on key assertions

Limitations

There are inherent limitations in performing Assurance; for example, assurance engagements are based on selective testing of the information being examined and it is possible that fraud, error or non-compliance may occur and not be detected. There are additional inherent risks associated with assurance over non-financial information including reporting against standards which require information to be assured against source data compiled using definitions and estimation methods that are developed by the reporting entity. Finally, adherence to ASAE 3000 and the Climate Bond Standard is subjective and could be interpreted differently by different stakeholder groups.

Our assurance was limited to TCorp's 2018 Sustainability Bond post-issuance, and did not include statutory financial statements. Our assurance is limited to policies and procedures in place as at 25 October 2019, after issuance of TCorp's 2018 Sustainability Bond.

APPENDIX 1 – INDEPENDENT REASONABLE ASSURANCE REPORT (CONTINUED)



Use of Report

Our responsibility in performing our assurance activities is to the Executive and Management of TCorp only, and in accordance with the terms of reference for this engagement, as agreed with TCorp. We do not therefore accept or assume any responsibility for any other purpose or to any other person or organisation. Any reliance any such third party may place on the 2018 Sustainability Bond post-issuance is entirely at its own risk. No statement is made as to whether the Criteria are appropriate for any third party purpose.

Our Independence and Assurance Team

In accordance with APES 110, we can confirm we have met the requirements of the Code of Ethics for Professional Accountants, including on independence. Our team has the required competencies and experience for this assurance engagement.

Ernst & Young

Adam Carrel
Partner
Sydney, Australia
25 October 2019

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