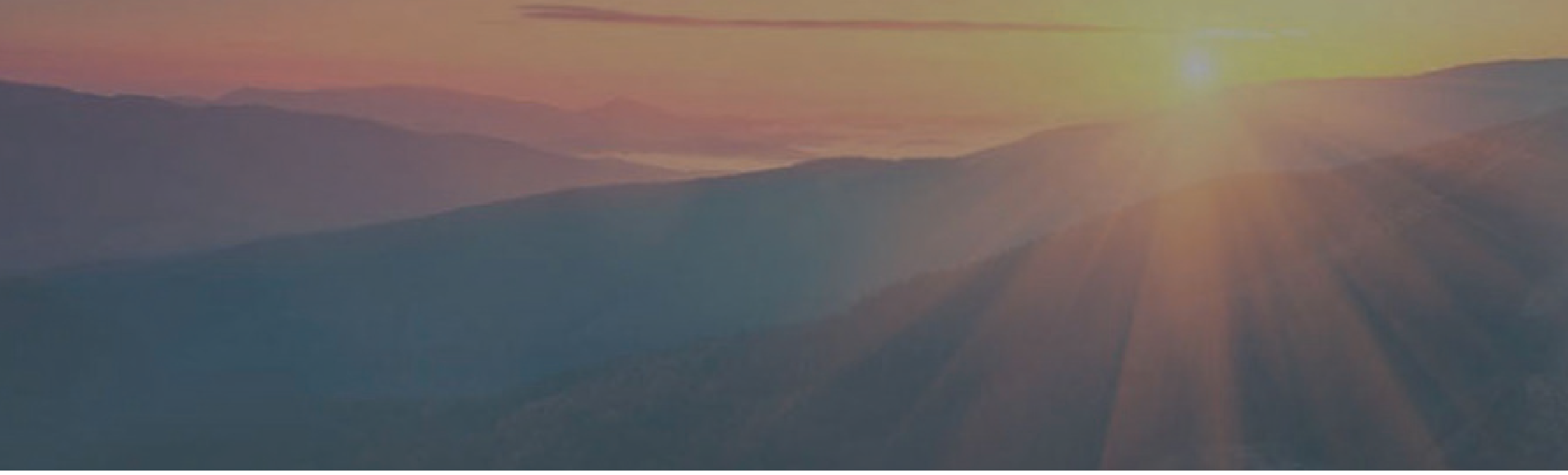
Planet Tracker

ANALYST NOTE

From Drought to Fires to Downgrade Risk

New South Wales Faces Long-Term Credit Risks as Natural Infrastructure Threatened

March 2020



ABOUT PLANET TRACKER

Planet Tracker is a non-profit financial think tank aligning capital markets with planetary limits. It was launched in 2018 by the Investor Watch Group whose founders, Mark Campanale and Nick Robins, created the Carbon Tracker Initiative.

Planet Tracker was created to investigate market failure related to ecological limits. This investigation is for the investor community where other ecological limits, in contrast to climate change, are poorly understood and even more poorly communicated, and not aligned with investor capital.

FOOD AND LAND USE TRACKER

Food and Land Use Tracker investigates the natural capital impact that equity funds have in financing publicly traded food and agriculture companies.

Our aim is to align capital markets with the sustainable management of global food systems and agriculture resources.

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DROUGHT TO FIRES TO DOWNGRADE RISK: NEW SOUTH WALES FACES LONG-TERM CREDIT RISKS AS NATURAL INFRASTRUCTURE THREATENED

The Australian state of New South Wales funds itself from taxes, national government disbursements and debt instruments issued by Treasury Corporation (TCorp), its private sector intermediary. Yet, with short-term catastrophic drought and fire risks increasing and forecast by the Government of Australia to continue to increase, New South Wales' proposed sale of its Forestry Corporation for AUD 1 billion has been cancelled.

With over AUD 67 billion in debt issued (see Table 4 at end of the report), Moody's, while confirming New South Wales' credit rating as Aaa Stable, has stated unambiguously that New South Wales is facing climate risks that will impede its long-term financial stability, with early signs appearing in its primary industries sector, which includes farming, forestry and related activities. The sector generates one out of every eleven export dollars, yet even before the devastating 2019–2020 droughts and fires, because of previous droughts in 2018–2019, winter and summer crop production in New South Wales had decreased 63% and 56% respectively, while water scarcity had increased significantly.

And now crop production has decreased even further.

Vanguard owns more of this risk than any other investor, with its aggregated 2.70% position in New South Wales debt. As shown in Table 2 (at the end of this report), other investors need to be concerned too, as Western Asset Management, Bank of New York Mellon, Mitsubishi UFJ Financial Group, AMP, BlackRock and others all have large positions in New South Wales debt.

Following on from the devastating droughts and fires, both New South Wales' and Australia's yield curves have become more inverted from January to February 2020, increasing short-term risks to investors.

New South Wales has recently issued two green bonds, some of whose proceeds are ring-fenced for conservation of potable water resources in Sydney. These assets are quite small given the need for potable water stability in Sydney and New South Wales over the long-term.

New South Wales is to be encouraged to expand its New South Wales Sustainability Bond Programme[1] to guarantee that all of its future debt instruments are green, such that use of proceeds are ring-fenced to conserve the natural capital infrastructure upon which Sydney, New South Wales and Australia as a whole rely, with proceeds used to mitigate a potential downgrade risk from its declining natural capital.

DROUGHT TO FIRES: ANALYSIS

From Q4 2019 to Q1 2020, Australia experienced catastrophic drought and fires. From the sky, swathes of the East Coast, where much of Australia's population lives, was charred. As shown in Figure 1, much of the area surrounding Sydney burnt during the 2019–2020 fire season.

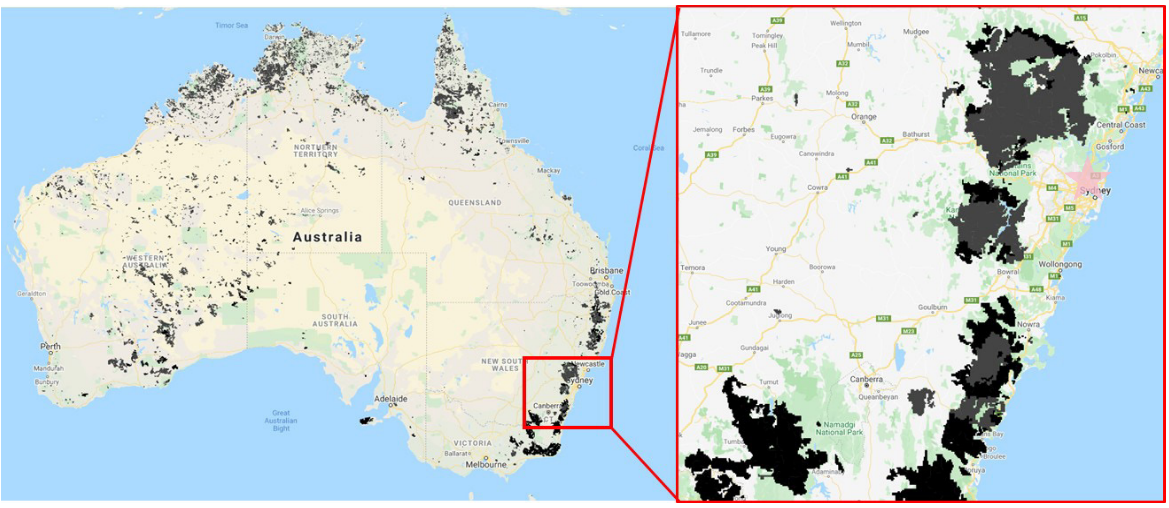

Figure 1: *Burnt Areas in Australia, 2019–February 2020 with Sydney highlighted by the red star.*[2]

Over this period, an estimated 18.6 million hectares burned in Queensland, New South Wales, Victoria, Western Australia, South Australia, Tasmania and the Australian Capital Territory releasing 900 million tonnes of carbon dioxide into the atmosphere, more than Australia's annual emissions of 531 million tonnes.[3] These emissions coincidentally occurred when carbon dioxide levels globally are the highest they have been in three million years.[4] This burnt area is similar in size to the state of Washington in the U.S. or the size of the countries of Greece and Costa Rica combined.

Animal deaths are estimated at more than one billion, more than 5,900 buildings have been destroyed and at least 34 people are dead.[5]

Australia became a tinderbox based on heat and drought that led to fires raging like an inferno. Australian fires require four factors:

- **High temperatures**
- **Low humidity**
- **Strong winds**
- **Fuel**

Earlier in 2019, exacerbated by the impacts of the warming climate, as reported by Australia's Bushfire and Natural Hazards CRC, the Indian Ocean Dipole – when less moisture occurs in Northwest Australia after cool waters off Western Australia meet warm African waters – changed regional weather patterns resulting in less rain than normal.[6] At the same time, the southern polar vortex increased westerly winds on mainland Australia also reducing rainfall, increasing temperatures and resulting in strong winds.

All that was needed at this point was a spark and a fuel source.

From January to August 2019, parts of Australia experienced their driest period on record.

In August 2019, the forecast of fire risk was above normal. As shown in Figure 2, much of the eastern populated part of Australia was forecast by the government to have above normal fire potential.[7]

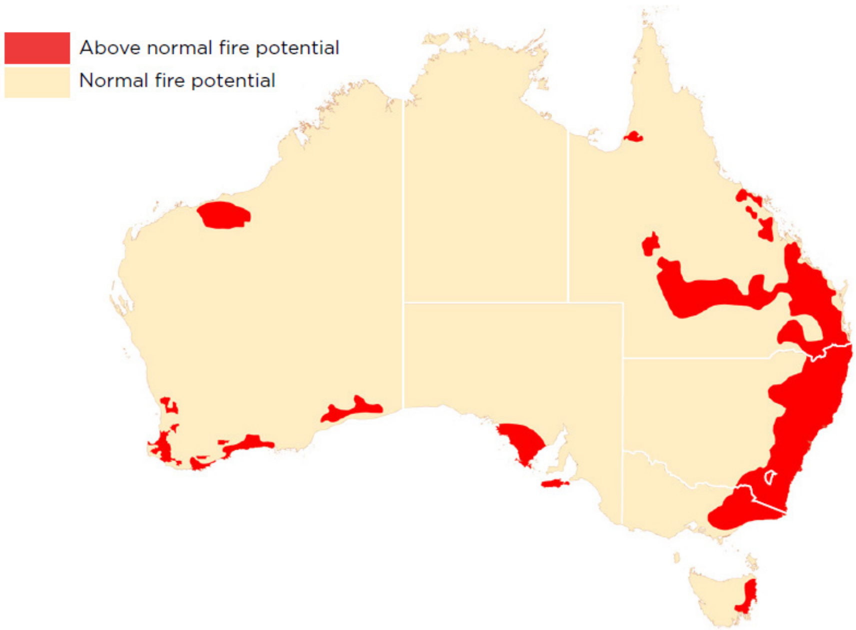

Figure 2: *Australian Seasonal Bushfire Outlook August 2019.*[8]

At the same time, as shown in Figure 3, throughout most of Australia rainfall was below normal while temperatures were above normal.

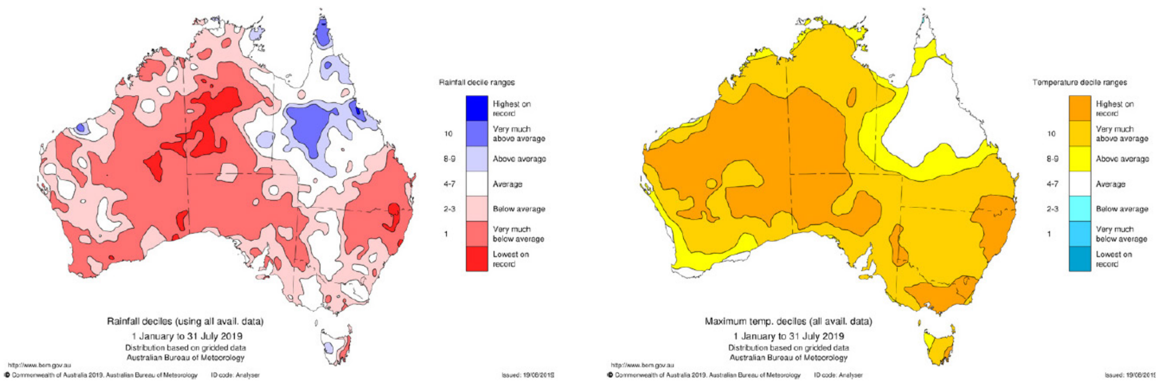

Figure 3: *Low Rainfall Reports from Australia, January 2019–July 2019 (left) and Maximum Temperature Report from Australia, January 2019–July 2019 (right).*[9]

So by August 2019, as shown in Figure 4, the Australian Bureau of Meteorology forecast below normal rainfall and above normal temperatures for almost the whole nation of Australia at the start of fire season, as reported by the Australia's Bushfire and Natural Hazards CRC.[10]

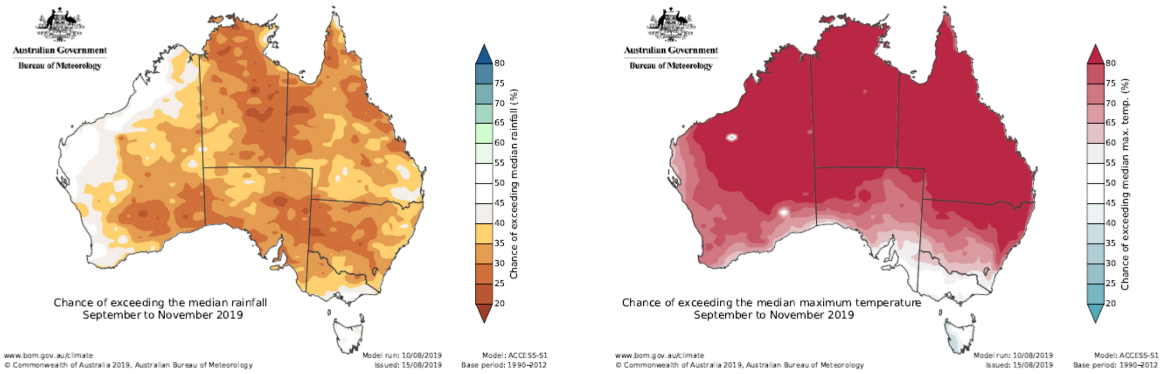

Figure 4: *Forecast of Low Chance of Exceeding the Median Rainfall in Australia, September–November, 2019 (left) and August 2019 Forecast of High Chance of Exceeding the Median Maximum Temperature in Australia, September–November, 2019 (left).*[11]

As a result, when lightning strikes started setting blazes throughout Australia, the fire season began earlier than normal.[12]

With high probability of overall temperatures experiencing long term rises as a result of global warming and as forecast by Australia's Bureau of Meteorology,[13], by 18 December Australia exceeded its average maximum temperature record by 1.6° C (2.9° F) with a new record of 41.9° C (107.4° F).

At this point, Sydney was surrounded by the Gospers Mountain and Green Wattle Creek fires, threatening the region's potable water supply because below average rainfall was unable to replenish regional water sources.

In January 2020, Australia's Bureau of Meteorology stated that 2019 was Australia's hottest year on record – 1.5° C (2.7° F) above average – combined with its lowest rainfall on record. December 2019 was 3.2°C (5.8° F) above average.

By January 2020, 50% of South Australia's iconic Kangaroo Island had burned.

The tragedy then expanded as the combined Dunns Road and Adaminaby Complex fires in New South Wales burnt more than 800,000 hectares. And many other fires continued to burn throughout Australia.

Australia's Bureau of Meteorology states it best:

> *The State's rainfall for the 36 months from January 2017 to December 2019 was the lowest for any 36-month period, breaking the previous record during the Federation Drought of 1900-1902.*[14]

Australia's 2019–2020 fire season was in no way normal. Fire density in New South Wales trebled over the previous decade and 2019 had more than 75,000 total fires, three times more than the next worst year in 2003,[15]

March 2, 2020 was the first day in 240 days without fires in New South Wales.

BEFORE THE DROUGHT AND FIRES:
DIRE AGRICULTURE PRODUCTION FROM LAND TO SEA

Unlike much of Australia's western states that rely upon mining, New South Wales' economy is above all a service driven economy with a low exposure to mining commodities and primary industries – agriculture, forestry, fishing and hunting – responsible for one out every eleven export dollars. In 2018–2019, New South Wales primary industries output was AUD 15.9 billion, with primary industries exports about AUD 5.01 billion, a 7% decrease year-over-year - see Table 1. China was New South Wales largest primary industries importer at AUD 1.97 billion.[16]

***Table 1:** New South Wales Primary Industries 2018–2019.*[17]
Note: Data from New South Wales NSW Department of Primary Industries slightly different than aggregate.

New South Wales Primary Industries 2018–2019	Output	Production YoY
Beef cattle	$2,588	8%
Recreational and charter fishing	$2,363	4%
Horticulture (fruits, nuts, nurseries, cut flowers, turf, and vegetables)	$1,729	1%
Hunting and game management	$1,596	4%
Wool	$1,226	-6%
Sheepmeat	$1,096	11%
Poultry	$785	0%
Cotton	$763	-56%
Wheat	$735	-46%
Forestry	$578	6%
Milk	$568	0%
Eggs	$269	2%
Barley	$246	-28%
Wine grapes	$235	3%
Pork	$194	-3%
Commercial Fisheries (wild catch, farmed fish)	$181	2%
Sorghum	$98	12%
Oilseeds (canola, cotton seed, soybeans, and sunflower)	$94	-81%
Sugarcane	$80	-6%
Pulses (faba beans, field peas, lentils, lupins, and chickpeas)	$75	-79%
Rice	$24	-90%
Goatmeat	$8	-24%

During 2018–2019, crop production in New South Wales was negatively impacted by drought, declining by 48% to AUD 2.5 billion with a 56% decrease in summer crop production and a 63% decrease in winter crop production respectively.[18]

Winter crop planted area decreased by 46% to three million hectares while winter crop production decreased by 63% to 2.9 million tonnes, 74% below New South Wales' ten-year average.[19]

Summer crop planted area similarly decreased by 33% to 385,000 hectares with summer crop production decreasing by 56% to 1.3 million tonnes, 52% below New South Wales' ten-year average.[20]

Farming was hurt by soil moisture deficit, below average rainfall and above average temperatures. The decrease in crop production resulted in higher feed costs with short supply in hay and grain for livestock.

Low water availability and high water costs led to increases in higher water prices in New South Wales' water allocation market. General Security[21] water entitlements increased by 32% to AUD 1,929 per share while High Security[22] water entitlements saw their volume weighted average prices increase by 58% to average of AUD 5,564 per share.[23]

NEW SOUTH WALES:
SELL FORESTS TO DROUGHT PROOF NEW SOUTH WALES?

At the same time as Australia's tinderbox was getting more dangerous in the fall of 2019, New South Wales was preparing a large asset sale from its wholly owned Forestry Corporation's timber estate.

Since 2016, New South Wales has been working to privatise its assets.

In 2016, 50% of Ausgrid, which distributes electricity in New South Wales, was sold for AUD 16 billion to a consortium led by Australia's biggest superannuation fund, AustralianSuper and IFM Investors. Investors are now considering paying AUD 10 billion to AUD 11 billion for the remaining 50% of Ausgrid as the asset is increasingly becoming less valuable due to the growth of renewable energy, particularly solar.

New South Wales is also considering selling its remaining 49% of the WestConnex road project in 2020. WestConnex is the largest infrastructure project in Australia, linking Western and South Western Sydney with the city, airport and port in a 33-kilometre continuous motorway. In 2018, New South Wales sold 51% of WestConnex for AUD9.3 billion to Transurban, the state's largest private road operator.

New South Wales Treasury Corporation (TCorp):

TCorp is the central financing authority for the New South Wales public sector. TCorp is responsible for the state's annual funding programme and providing loans to general government agencies and public trading enterprises. To do this, TCorp issues bonds and other debt instruments to domestic and international investors on behalf of the state of New South Wales. All their issued debt is fully guaranteed by the New South Wales Government and is rated AAA and Aaa for both Australian and foreign currency issues respectively.

New South Wales is also considering selling its Sydney Water assets, along with options to build the extension to Sydney's desalination plant and other new projects. Sydney's existing desalination plant became operational in January 2019 and at 100% capacity, it provides 15% of Sydney's potable water.

As Sydney's dam system, currently at 44% capacity and falling, continues to experience lost capacity due to numerous ecological factors, funding will be needed to expand desalination in the mid-term, hence the consideration to sell Sydney Water assets.

Included in New South Wales' push to privatize its assets was the proposed key sale of 230,000 hectares of its softwood plantations for AUD 1 billion to fund infrastructure projects.[24] The proposed sale was for a long-term lease of the land with the right to grow timber. The financial consortium leading the sale included the bank UBS, the accounting firm KPMG, the law firm MinterEllison and agricultural industry consultants Margules Groome.

Forestry Corporation's hardwood timber plantations and coastal native forests, cypress forests and red gum forests were excluded from the proposed sale. While New South Wales forests are responsible for only 14% of Australia's timber, these same forests provide most of the timber for Australia's houses.

This followed New South Wales reporting its financial results for 2018–2019 in September 2019, showing an AUD 417 million increase in its annual surplus, driven by an increase in tax receipts, over its previous year surplus of AUD 802 million resulting in about AUD 300 million extra being added in the NSW Generations Fund. The NSW Generation Fund is New South Wales' subnational sovereign wealth fund[25].

Ten possible bidders were originally identified as potential buyers, including various timber management organizations such as New Forests, Global Forest Partners, Hancock Timber Resource Group, OneFortyOne (Australia's Future Fund) and The Rohatyn Group26.

But by mid-January 2020, the fires in New South Wales had burnt off AUD 500 million of the economic value of the proposed asset sale – 50% of the asset's value of the original asking price – and damaged about 50,000 hectares of the asset, ending the proposed sale[27]. This was not the first large forest estate sale in Australia. In 1998, the state of Victoria had previously sold its softwood assets and in 2010, Queensland sold their Forestry Plantations for AUD 603 million.[28,29]

At the same time, by mid-January, data from the Insurance Council of Australia suggested that the 2019–2020 fire season may damage Australia's economy over the long-term. At this point, direct insured losses were expected to exceed AUD 5 billion with some forecasts of overall losses to Australia's economy to be greater than AUD 150 billion.

Pension funds are also exposed. In 2019, Canada's Public Service Pension Investment Board invested AUD 1.65 billion in Australian agriculture when they completed their purchase of Webster, an Australian water rights and tree nuts company, for AUD 854 million. Then in December, they spent AUD 490 million to purchase water rights in the Murray Darling Basin from Olam International, the Singapore-based firm majority-owned by Singapore's sovereign wealth fund, Temasek. They also purchased Adveg Almond Trust in the state of Victoria for an estimated AUD 300 million. This resulted in the Public Service Pension being heavily overweighted in natural resources allocation to Australia with more than 57% of their fund's natural resources fund invested primarily in Australian agribusiness.[30]

Fallout is not just limited to houses burning to the ground, it also includes food production, timber, access to potable water, tourism, transport and other sectors of the economy. Also, by mid-January, the fires began to impact tourism in New South Wales and, in particular, tourists from mainland China, who spend AUD 12 billion annually, with 25% of trips during the Chinese New Year holiday season in January and February. Bookings were down an estimated 30% over this period, compounded by the coronavirus outbreak.[31]

By early February, the Reserve Bank of Australia - the country's central bank - decided to leave its cash rate at 0.75% stating that, "In the short term, the bushfires and the coronavirus outbreak will temporarily weigh on domestic growth."[32] Then on 2 March, it cut its cash rate to 0.50%.

Furthermore, the Reserve Bank of Australia stated that low interest rates are assisting families to strengthen their balance sheets, which may encourage spending as a pathway to greater long-term growth, while underlying inflation - CPI - is forecast to remain low, increasing up to 2% in the next couple of years, supporting Australia's relatively strong labour market, even though January 2020's unemployment rate inched up one-tenth of 1% unexpectedly to 5.3%.

But interestingly, as shown in Figure 5, comparing 2 January 2020 to 25 February 2020, New South Wales' yield curve is now inverted while Australia's national yield curve has become more deeply inverted – possibly in response to the fires and the tourism collapse caused by Coronavirus. An inverted yield curve for example, when short-term interest rates are higher than long-term rates, is considered a key predictor of an economic recession.

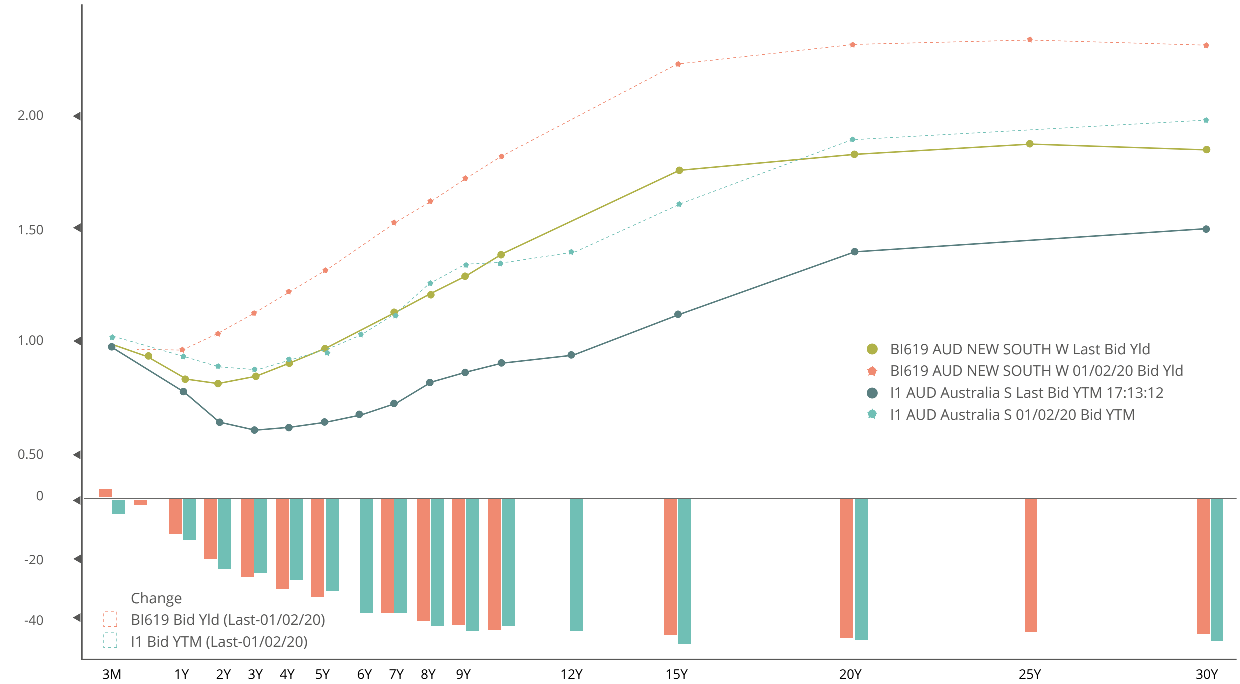

Figure 5: *Comparing New South Wales' and Australia's Yield Curves, 2 January 2020–25 February 2020.*[33]

To provide some assurance to markets and investors, Moody's next weighed in stating that it had completed its periodic review of TCorp affirming its:

> *...rating of Aaa assigned to New South Wales reflects the strong institutional framework for Australian states and their ability to adjust state-based revenues and expenditures as required. The credit profile is also supported by secure and predictable grants from the Government of Australia ("the Commonwealth", Aaa stable), a diverse and robust economy and healthy financial margins.*[34]

At the same time though, Moody's also said that climate-related risks pose a long-term credit challenge for New South Wales, stating that without fully quantifying the impact, at this early stage New South Wales will need to spend at least AUD 1 billion by end of their fiscal year in June 2020 to fund brushfire recovery.

According to John Manning, a Moody's Vice President and Senior Credit Officer:

> *The 2019-20 bushfire season and ongoing drought – the worst on record – have materially disrupted economic output across regional New South Wales and have increased the state's budget pressure. In addition to hindering agricultural production, the prolonged drought is also exacerbating future water stress risk in Greater Sydney – an area that accounts for a growing share of New South Wales' overall economy, We currently consider water stress to pose the greatest risk to this part of New South Wales over the longer term.*[35]

But, by 20 February 2020, the proposed Forestry Corporation privatization was cancelled due to the unprecedented fire damage.[36]

So, the question remains: did the TCorp bond issuance on 17 February 2020 replace the proposed Forestry Corporation privatisation plan?

Not only does the Forestry Corporation cancellation of its sale squeeze funds for New South Wales, it may also have resulted in the 17 February 2020 issuance by TCorp of its first EUR denominated bond. This is a 30-year bond due 24 February 2050 valued at AUD 99 million (Cusip: BG1063547), paying 0.609% per annum annually in arrears. The dealers were Merrill Lynch and UBS.[37]

But it's worth looking a little deeper, as the proposed Forestry Corporation's assets sale might have been used to fund potable water projects, such as the expansion of Sydney's desalination plant from 15% to 30% of total water use in Sydney, as Sydney's dam water infrastructure is now only at 44% capacity and decreasing as the forests and landscapes around Sydney are increasingly damaged by the cycle of drought and fire. TCorp missed a market opportunity when it issued its 30-year bond due 24 February 2050 to issue it as a green bond.

In September 2019, Jim Bentley, CEO of New South Wales Department of Planning, Industry and Environment, stated that planning for the expansion of Sydney's desalination plant had begun, in an effort to decrease the risk that Sydney might have a Day Zero - the day when the city would have no more potable water.[38]

This Cape Town Day Zero risk is not hypothetical.

New South Wales has in fact been assessing if they can reverse the course of rivers - no longer let freshwater rivers enter the sea - to use as potable water for irrigation and human consumption.[39]

But potable water for whom? New South Wales is considering reversing the flow of the Clarence river inland into headwaters of the Border rivers system primarily to support irrigation for agriculture. Further analysis has also been done by WaterNSW suggesting ways to reverse the courses of the Manning, Macleay and Hunter rivers inland to also support potable water and irrigation.[40]

The Cape Town water crisis in South Africa began in 2015 and then peaked in 2017-2018, when Day Zero became a real threat. **Day Zero** is when Cape Town's water level supply would fall below 13.5 percent, when municipal water supplies would largely be switched off and residents would have to queue for their daily water ration.

KEY RECOMMENDATIONS: INVESTORS AND BANKERS OWN RISKS

Institutional investors who are exposed to New South Wales' TCorp's debt need to consider how New South Wales is managing its environmental risks that accrue from its increasing cycle of drought to fires as the state works to mitigate its downgrade risk. Vanguard, Western Asset Management, Bank of New York Mellon, Mitsubishi UFJ Financial Group, AMP, BlackRock and many other investors should be concerned.

Given how the majority of New South Wales debt matures in the next ten years, as shown in Figure 6, investors need to consider how environmental risk management strategies executed over this period by New South Wales, which is responsible for one-third of Australia's GDP, intersects with potential for downgrade risk if environmental risks are not mitigated.

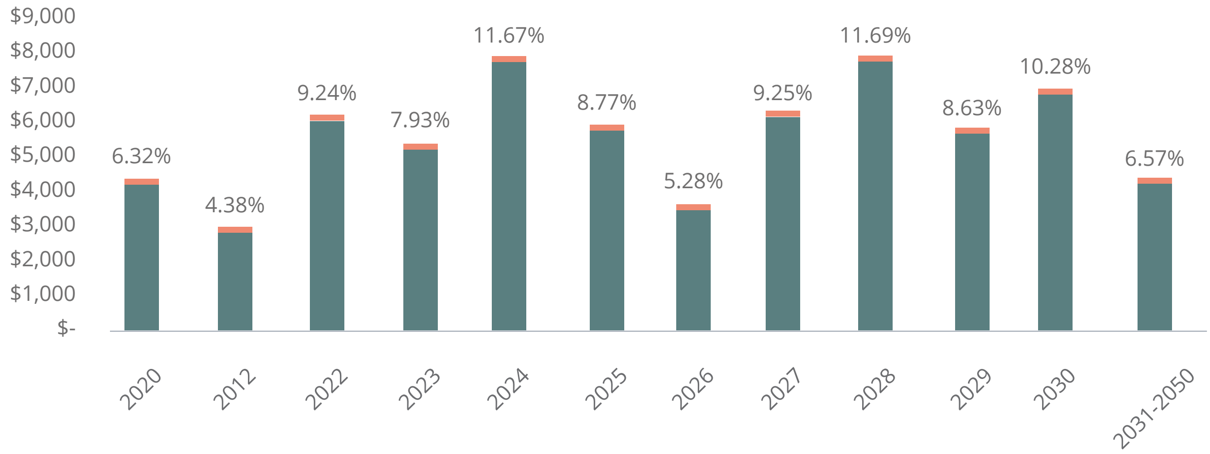

Figure 6: *New South Wales Treasury Corporation Debt Maturity by Year as of 25 February 2020 for the Period 2020–2050.*[41]

As shown in Table 3, Treasury Corporation's bankers themselves need, whether they are in the Domestic State Guaranteed, Capital Index Linked or Euro Commercial Paper markets, to consider their own reputational risks and risks to the clients who buy from them, if New South Wales cannot enact a long-term environmental risk strategy to address its threats from drought and fire.

In addition, these investors and bankers need to ask themselves how they wish to be exposed to Australia's devasting extreme weather, as its 2020 agriculture sector continues to be hammered, with the planted cotton area the smallest in 40 years, its sheep flock the smallest in 100 years and its wine grape crush down 15%.

Noting that only 4% of New South Wales debt is green, the state is to be encouraged to expand its New South Wales Sustainability Bond Programme[42] to guarantee that it will certify all of its future debt instruments as green to ensure that use of proceeds are ring-fenced to conserve the natural capital infrastructure the state relies upon.

Already, empty dams, dry soils and kindling are prepping Australia for another devastating fire season that is only six months away. Now, with the Australian Bureau of Agricultural and Resource Economics and Sciences' (ABARES) crop estimate showing record low levels of soil moisture leading to a 66% decrease in summer crop plantings and New South Wales' summer crop plantings forecast to decrease by 76%, Australia's GDP growth has been forecast to decrease by 0.1% in 2020.[43]

So, what is investors' money doing and where is it being deployed?

Should not all investors demand that New South Wales debt be green – to protect their investments and mitigate their long-term risks?

Australia and New South Wales must reassure investors by enacting nature-based solutions to mitigate the drought to fire to downgrade risk cycle, otherwise investors may see their investment risk increase as credit risks associated with the increasingly extreme threat of drought and fire escalates.

Table 2: *Top Twenty Institutional Investors Owning New South Wales Treasury Corporation Debt, 25 February 2020.*[44]

** Note: Due to differences between reporting dates and current valuation and debt payment schedules, values are slightly different than Table 4.*

Company	Number of Positions	Position (AUD million)*	Percent New South Wales Debt Outstanding	Reporting Date
Vanguard	18	$1,711	2.70%	1/31/2020
Western Asset Management	9	$253	0.40%	11/28/2019
Bank of New York Mellon	3	$252	0.40%	9/30/2019
Mitsubishi UFJ Financial Group	12	$187	0.29%	12/17/2019
AMP Ltd	4	$148	0.23%	7/31/2019
Schroders	3	$135	0.21%	1/31/2020
BlackRock	21	$132	0.21%	2/24/2020
Daiwa Securities Group	2	$118	0.19%	11/15/2019
Perennial Investment Management	1	$106	0.17%	7/31/2019
Loomis Sayles & Co.	1	$100	0.16%	12/31/2019
Natixis	1	$95	0.15%	12/31/2019
UBS	13	$85	0.13%	12/30/2019
Standard Life Aberdeen	6	$83	0.13%	1/31/2020
Janus Henderson Group	1	$79	0.12%	7/31/2019
Mizuho Financial Group	5	$56	0.09%	12/5/2019
T Rowe Price Group	2	$55	0.09%	12/31/2019

Table 3: *New South Wales Treasury Corporation's Bankers by Issuance Type, 25 February 2020.*[45]

Issuers	Domestic State Guaranteed	Capital Index Linked	Euro Commercial Paper
Australia and New Zealand Banking Group	Yes	Yes	No
Bank of America Merrill Lynch	No	No	Yes
Barclays Bank	No	No	Yes
BNP Paribas	Yes	No	No
Citibank	Yes	Yes	Yes
Commonwealth Bank of Australia	Yes	Yes	Yes
Deutsche Bank	Yes	Yes	Yes
HSBC	Yes	No	Yes
J.P. Morgan Australia	Yes	Yes	No
Merrill Lynch	Yes	Yes	No
National Australia Bank	Yes	No	Yes
Nomura International	Yes	Yes	Yes
Royal Bank of Canada	Yes	No	Yes
Toronto-Dominion Bank	Yes	No	No
UBS	Yes	Yes	Yes
Westpac Banking Corporation	Yes	Yes	Yes

Table 4: *New South Wales Debt Instruments, 25 February 2020.[46]*
Note: *BCMP is Bloomberg Capital Markets Package. BVAL is Bloomberg Valuation. Green bonds are highlighted in green.*

Debt Instrument	Maturity (MMDDYYYY)	Amount Outstanding (AUD million)	Cusip	Type	Valuation Source
New South Wales Treasury Corp. 6.000%	5/1/2020	$1,928	EI2216956	Domestic State Guaranteed	BCMP
New South Wales Treasury Corp. 6.000%	6/1/2020	$65	EI0205258	Commonwealth Guaranteed	BCMP
New South Wales Treasury Corp. Zero	6/30/2020	$3	EJ9443577	Zero	BVAL
New South Wales Treasury Corp. Floating	10/8/2020	$1,160	EK8388010	Floating Rate	BVAL
New South Wales Treasury Corp. 3.750%	11/20/2020	$622	EH9438399	Capital Index Linked	BCMP
New South Wales Treasury Corp. Zero	11/23/2020	$465	TT3061583	Zero	BCMP
New South Wales Treasury Corp. 4.000%	4/8/2021	$2,941	EJ9128467	Domestic State Guaranteed	BCMP
New South Wales Treasury Corp. Zero	6/30/2021	$3	EJ9443932	Zero	BVAL
New South Wales Treasury Corp. 6.000%	3/1/2022	$5,101	EI7851682	Domestic State Guaranteed	BCMP
New South Wales Treasury Corp. Zero	6/30/2022	$3	EJ9444179	Zero	BVAL
New South Wales Treasury Corp. 0.500%	9/14/2022	$550	EI3800964	Bullet	BVAL
New South Wales Treasury Corp. 0.500%	10/7/2022	$200	EI4039638	Bullet	BVAL
New South Wales Treasury Corp. 0.500%	10/28/2022	$150	EI4255143	Bullet	BVAL
New South Wales Treasury Corp. 0.500%	11/18/2022	$150	EI4498701	Bullet	BVAL
New South Wales Treasury Corp. 0.500%	12/16/2022	$50	EI4808818	Bullet	BVAL
New South Wales Treasury Corp. 0.500%	2/2/2023	$50	EI5297359	Bullet	BVAL
New South Wales Treasury Corp. 0.500%	3/30/2023	$30	EI5987124	Bullet	BVAL
New South Wales Treasury Corp. 4.000%	4/20/2023	$4,678	EJ6685295	Domestic State Guaranteed	BCMP
New South Wales Treasury Corp. 6.000%	5/1/2023	$562	EG7965148	Commonwealth Guaranteed	BCMP
New South Wales Treasury Corp. Zero	6/30/2023	$3	EJ9444534	Zero	BVAL
New South Wales Treasury Corp. 1.000%	2/8/2024	$2,550	ZR4566439	Domestic State Guaranteed	BCMP
New South Wales Treasury Corp. Zero	6/30/2024	$3	EJ9469564	Zero	BVAL
New South Wales Treasury Corp. 3.752%	7/22/2024	$25	EK3846780	Bullet	BVAL
New South Wales Treasury Corp. 5.000%	8/20/2024	$5,258	EJ1148026	Domestic State Guaranteed	BCMP
New South Wales Treasury Corp. Floating	2/24/2025	$1,170	EK7618490	Floating Rate	BVAL
New South Wales Treasury Corp. 1.250%	3/20/2025	$1,800	ZQ2795008	Green[47] and Domestic State Guaranteed	BCMP

New South Wales Treasury Corp. Zero	6/30/2025	$3	EJ9493754	Zero	BVAL
New South Wales Treasury Corp. 2.750%	11/20/2025	$2,918	EH0572402	Capital Index Linked	BCMP
New South Wales Treasury Corp. 4.000%	5/20/2026	$3,547	EK4579513	Domestic State Guaranteed	BCMP
New South Wales Treasury Corp. Zero	6/30/2026	$3	EJ9493994	Zero	BVAL
New South Wales Treasury Corp. Zero	6/30/2027	$3	EJ9494117	Zero	BVAL
New South Wales Treasury Corp. 3.000%	5/20/2027	$6,210	AM9619967	Domestic State Guaranteed	BCMP
New South Wales Treasury Corp. 3.000%	3/20/2028	$5,965	JK7100148	Domestic State Guaranteed	BCMP
New South Wales Treasury Corp. Zero	6/30/2028	$3	EJ9494232	Zero	BVAL
New South Wales Treasury Corp. 5.000%	11/1/2028	$82	EH6169203	Bullet	BVAL
New South Wales Treasury Corp. 3.000%	11/15/2028	$1,800	AV3246445	Green[48] and Non-Benchmark	BCMP
New South Wales Treasury Corp. 3.000%	4/20/2029	$5,792	AP6181865	Domestic State Guaranteed	BCMP
New South Wales Treasury Corp. Zero	6/30/2029	$1	EJ9494356	Zero	BVAL
New South Wales Treasury Corp. 3.000%	2/20/2030	$6,587	LW9384808	Domestic State Guaranteed	BCMP
New South Wales Treasury Corp. 6.000%	5/1/2030	$319	EI3301567	Non-Benchmark	BCMP
New South Wales Treasury Corp. Zero	6/30/2030	$1	EJ9494596	Zero	BVAL
New South Wales Treasury Corp. 2.000%	3/20/2031	$2,131	AZ8041354	Domestic State Guaranteed	BCMP
New South Wales Treasury Corp. Zero	6/30/2031	$1	EJ9494950	Zero	BVAL
New South Wales Treasury Corp. Zero	6/30/2032	$1	EJ9495072	Zero	BVAL
New South Wales Treasury Corp. Zero	6/30/2033	$1	EJ9495197	Zero	BVAL
New South Wales Treasury Corp. Variable	2/23/2034	$17	EI6057786	Variable	Exchange
New South Wales Treasury Corp. 3.500%	3/20/2034	$424	AU4766815	Non-Benchmark	BCMP
New South Wales Treasury Corp. 2.500%	11/20/2035	$1,126	EH1113396	Capital Index Linked Bonds	BVAL
New South Wales Treasury Corp. Zero	1/19/2036	$100	JV6129664	Zero	BVAL
New South Wales Treasury Corp. 3.500%	11/20/2037	$222	AP9713805	Non-Benchmark	BCMP
New South Wales Treasury Corp. 5.000%	2/25/2039	$87	EH7301375	Bullet	BCMP
New South Wales Treasury Corp. 2.375%	4/26/2041	$202	EI6266221	Bullet	BVAL
New South Wales Treasury Corp. 0.609%	2/24/2050	$99	BG1063547	Bullet	BVAL
Total		**$67,164**			

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- Newcastle Light Rail
- Sydney Metro Northwest
- Quakers Hill and St Marys Water Recycling Plants Process and Reliability Renewal
- Green Square Trunk Stormwater Improvement
- Astrolabe Park Stormwater Improvement
- Strangers Creek Stormwater Improvement
- Cooks River Naturalisation
- Powells Creek Naturalisation
- Transport Access Programme
- Schools programme.

These projects and assets fall within the following eligible project categories as outlined in the Framework, and within the International Capital Markets Association ("ICMA") Green Bond Principles and ICMA Social Bond Principles including clean transportation, sustainable water and wastewater management and access to essential services.

[48] TCorp. New South Wales Treasury Corporation 3.0% Fixed Rate due 15 November 2028 TCorp Green Bond Investor Term Sheet.

The New South Wales Sustainability Bond Framework ("Framework") outlines the Issuer's process relating to use of proceeds, project evaluation and selection, management or proceeds, disclosure and reporting and assurance. The Issuer intends to allocate the net proceeds of the issuance of the Notes towards financing or refinancing a portfolio (the "Portfolio") of projects and assets. The Portfolio meets the eligibility requirements for certification under the Climate Bonds Standard as set out in the 'Green Bond Eligibility Criteria' section of the Framework and contributes to achieving the United Nations Sustainable Development Goals ("SDGs").

The Issuer intends to allocate proceeds from its issuance of all Green Bonds on an aggregated basis against the projects and assets contained in the Portfolio. As at the date of the Pricing Supplement, the Portfolio includes the following projects and assets:

- Newcastle Light Rail
- Sydney Metro Northwest
- Quakers Hill and St Marys Water Recycling Plants Process and Reliability Renewal.

These projects and assets fall within the following sectors recognised by the Climate Bonds Initiative: Low Carbon Transport and Water Infrastructure.

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