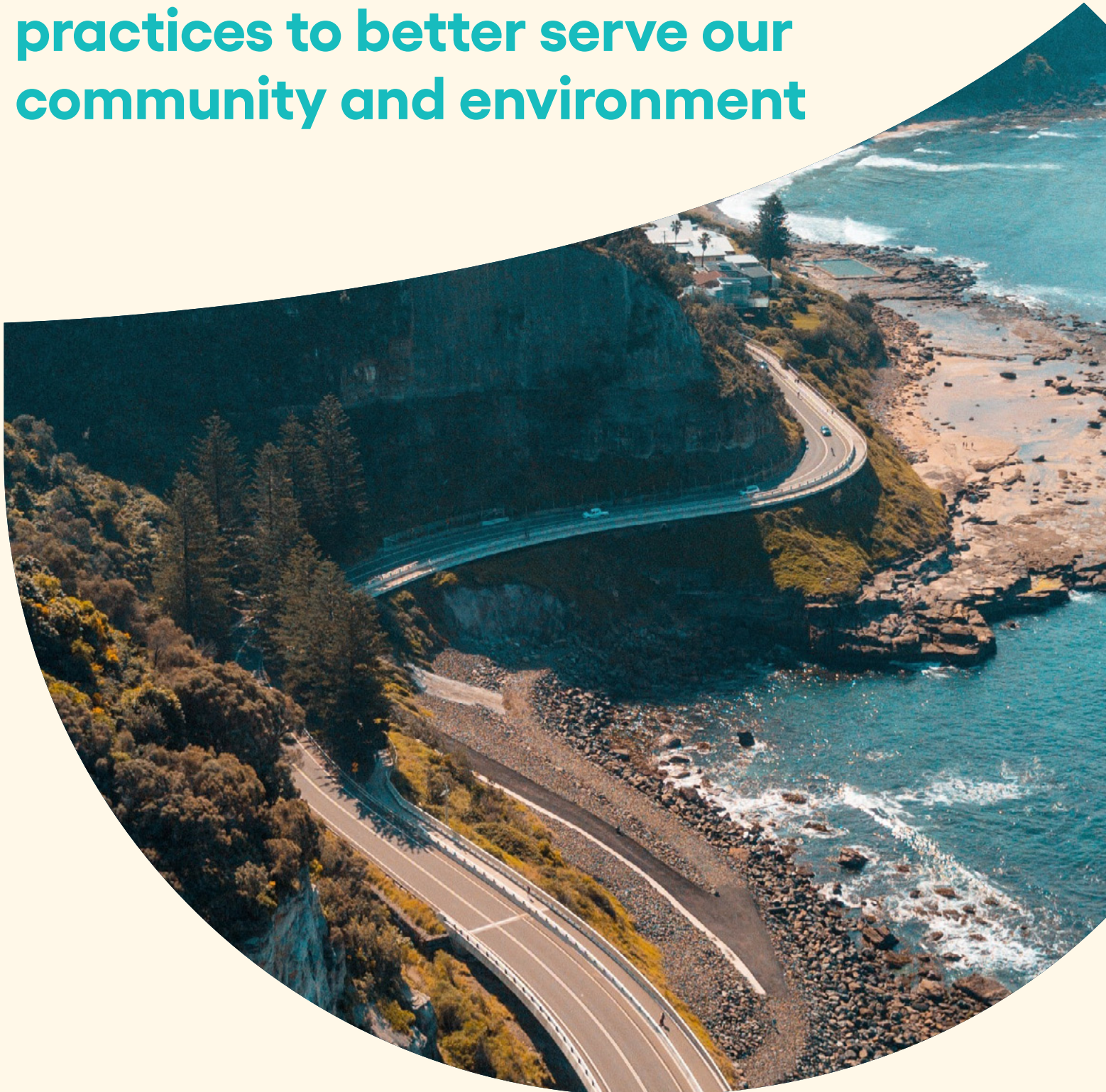




Developing sustainable infrastructure asset management practices to better serve our community and environment



Sustainability in infrastructure asset management

The impact of climate change is undeniable, and its effects are being pulled into sharp focus across governments globally. The heatwaves which struck most of Europe and the UK this summer, the devastating bushfires in Australia and of course the historic February floods on the Australian east coast are ratcheting up pressure on government to establish a solution—and fast.

Following last year's COP26, it was acknowledged that creating a more sustainable future will require a collective global effort and an enormous capital injection to enable the vast structural changes required. In early September, Parliament codified Australia's 2030 and 2050 greenhouse gas emission reduction targets. The Climate Change Bill called for a reduction target of 43%. With this noticeable pivot towards decarbonisation in the wake of the pandemic, increasing inclement weather events and the impact of global warming, the question of how to reach net zero and demonstrate progress is centre stage.

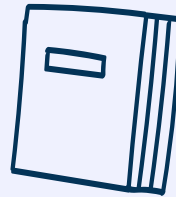
As we grapple with developing a tangible plan for reaching net zero targets, this report looks at what can be done now, how local governments can start to make inroads in addressing sustainability and proactively plan for what's coming.

Treat the cause, not just the symptoms

A critical lever in the decarbonisation journey is infrastructure asset management. The Global Commission on the Economy and Climate [estimated in 2016](#) upwards of US\$90 trillion was needed in sustainable infrastructure investment to meet 2030 carbon reduction targets.

Historically, sustainability efforts have started with low-risk, discrete implementations, such as LED lighting upgrades and replacing equipment with high-efficiency equipment. The focus has been on treating the symptoms rather than looking at the cause. It's time for a new asset management playbook—one where sustainability is not an afterthought but is instead placed at the centre of decision making.

A focus on sustainability means asset managers must consider the long-term future of assets and plan for decarbonising accordingly. In the first instance, asset managers should weigh the value of CAPEX shifts versus the long-term OPEX value of a high carbon consuming asset. Critically, they must also factor resilience of their assets due to increased exposure to extreme weather and climate events. The road to decarbonising requires strategic, long-term planning, and a new approach to asset planning and valuation.



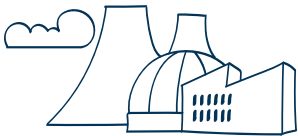
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Establishing the playing field

Increasing regulation leads to greater accountability and better outcomes for the community by providing the standards for all stakeholders to meet.

The shift to more sustainable practices places pressure on asset managers in strategic planning and the deployment of capital. However, following COP26, there has been an uptick in regulatory action setting boundaries and accountability where the onus previously lied with individual councils or businesses.

There are four primary areas of focus recent regulation has focused on, offering a good starting point to establish best practice for asset managers.



1. Reaching net zero by 2050

Reaching net zero by 2050 was universally agreed to be the floor rather than the ceiling in planning for decarbonisation. As mentioned previously, the UK have set the most ambitious target with many European countries following suit. However, reaching net zero is not restricted to countries, state or provincial government—metropolitan and local councils are also required to set their own decarbonisation targets.

Australian local councils are doing their part with 89 out of 537 local councils have committed to net zero emissions by 2050 at the latest, according to [Cities Power Partnership](#). The majority of these councils are located within Victoria and New South Wales. Other than ACT's singular council that achieved its 100% renewable energy target in 2020, Victoria is leading the nation's race to net zero, with almost half of the state's councils currently committed to ambitious targets.

The City of Sydney was the first local government in Australia to become carbon neutral in 2007. Sydney has also revised its community emissions target to 2035, aiming to hit net zero five years earlier than planned. This goal is a feature of Council's [proposed new environmental strategy 2021-2025](#), which highlights a commitment to tackling the climate emergency.



2. Energy & carbon disclosure

Over 40 municipalities in the US have already established energy and carbon disclosure agreements, with financial penalties for non-compliance becoming a new 'lever' deployed by governments.

In Australia, corporations registered under the [National Greenhouse and Energy Reporting Act 2007](#) (NGER Act) must report their greenhouse gas emissions, and energy production and consumption, to the Clean Energy Regulator by October 31 each year. By February 28 each year, the Clean Energy Regulator is required to publish a point-in-time extract of [reported scope 1 and scope 2 greenhouse gas emissions](#) in addition to net energy consumption for each corporation that exceeds the [publication threshold](#).



3. Sustainable finance disclosure

Sustainable Finance Disclosure Regulations (SFDR) is a new EU regulation requiring financial service providers and owners of financial products to assess and disclose environmental, social, and governance (ESG) considerations publicly ([JP Morgan SE](#)). By creating greater transparency within finance, this will influence the entire ecosystem to become more accountable.

The frequency and prominence of such disclosures will continue to penetrate government and councils globally, which will begin to influence future town planning, construction and development to allow for more climate resilient and energy efficient infrastructure.



4. Required phase out of natural gas heating

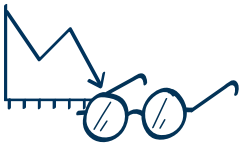
The required phase out of natural gas heating is emerging as a key issue for local councils. Regulations vary for new versus existing buildings across the globe, which is leading to confusion and concern for residents amid rising energy costs.

Victoria released its [Regional Renewable Energy Roadmaps](#) in 2020, outlining a plan involving electrification, improved energy efficiency and the use of hydrogen and biomethane to help reduce bills and cut carbon emissions. Existing incentives for all residential gas products will be phased out by the end of 2023. The government said the campaign was part of its plan to drive down the cost of living and halve emissions by 2030.

Setting a winning strategy

Risk mitigation and proactive planning is increasingly important for the industry to create climate resilient infrastructures and maintain greener, smarter and more efficient assets to ultimately benefit the entire community.

Asset managers must take action to minimise risks associated with the move to more sustainable practices and climate change. These can be broadly split into three categories:



Carbon transition

Planning for the transition to net zero will require far more than a ‘business as usual’ approach and will require long-term, strategic planning. Asset strategy will be a factor, and disciplined capital investment dictates that major equipment is replaced at the end of service life—it will be critical that these opportunities are catalogued and not missed. However, waiting for end of service prolongs reduction in emissions. Scenario analysis is vital to understand what replacement or retrofit expenditures are necessary to reduce emissions and operating cost over the long term.

Risk mitigation planning helps local government councils better prepare for natural disasters – both in how they respond when a disaster occurs, how they prevent soaring damage costs by improving infrastructure ahead of time and how long they hold onto assets.



Resilience & physical risk

According to scientists, extreme weather events will become more frequent, more intense and more unpredictable as a result of climate change. While we can’t prevent natural disasters, we can do a lot more to make community infrastructure more resilient.

Risk mitigation planning helps local government councils better prepare for natural disasters—in how they respond when a disaster occurs, how they prevent soaring damage costs by improving infrastructure ahead of time and how long they hold onto assets. For example, by conducting scenario modelling, councils can see the potential impact of an event like flooding on stormwater drainage. If they see that they could have a problem with capacity, they can then focus capital investment on renewing that infrastructure or build a case to attract additional funds so the problem can be fixed ahead of a flood occurring.



Energy efficiency

Tracking your energy consumption and opportunities for efficiencies. This allows you to manage your energy and GHG footprint, as well as track and forecast savings and performance based on planned projects, including return on investment. In the US, a study by Deutsche Bank and the Rockefeller Foundation found that retrofitting buildings for energy conservation could save the nation more than \$1 trillion over 10 years, while simultaneously reducing greenhouse gas emissions by 10%.

Another great example closer to home is the City of Sydney’s Energy Efficiency Master Plan, which calls for \$400 million in energy efficiency improvements. The city’s goal is to double energy production while reducing energy costs by \$600 million by 2030. If successful, Sydney stands to cut energy costs by \$220 million annually with an additional \$70 million saved each year due to reductions in electricity infrastructure costs.

How can local governments create a more sustainable future for communities?

Understand your carbon footprint

You can't say what reduction targets look like for your organisation if you don't know what your baseline emissions, or starting point, is. Create a plan to centralise your energy consumption data, typically most efficiently executed with a software. From there, you will be able to benchmark your Scope 1 and Scope 2 (direct emissions from your operations and indirect emissions purchased from utilities) greenhouse gas emission. For Scope 3 emissions (indirect emissions from your value chain), you will need to define the boundaries of what is most impactful to measure. Your benchmark footprint will help to forge a path on meeting targets within a certain timeframe.

Set your emission reduction target pathway

With your carbon footprint as a guide and key stakeholders at the table, develop a plan to reach, and potentially exceed, Australia's goal of a 43% reduction. According to an IPSOS poll, 83% of Australians are concerned about climate change with a majority of constituents believing the government could do more. It is imperative to understand what short-term reduction measures include, as well as various paths to long term initiatives, including your organisational governance and structure. Some organisations may need to start with carbon neutral, depending on how hard it is to decarbonise. Some can be ambitious enough to be carbon negative instead of just net zero.

Increasing numbers of stakeholders are becoming engaged in ESG decision making, therefore ensure your workflows are integrated when evaluating key factors such as carbon tax, legislation, utility costs and sustainability ROI. Finally, make sure you track and analyse your actual and projected emissions and adjust your plans if you are ahead or behind schedule.

Consider sustainability in your long-term asset planning

While your existing assets can deliver sustainability outcomes, there is also the opportunity to apply strategic asset management in planning for the future. This may include investing in your older assets to improve performance or acquiring new systems and assets, such as two-way batteries whereby electric fleets can be used to charge buildings and vice versa. This is something many cities are looking at on their roadmap to net zero.

Think beyond short-term planning cycles

Asset managers must become better at storytelling to engage decision-makers in the sustainable asset management journey. It is difficult to gain commitment to future sustainability plans when funding cycles are limited to short-term thinking. The cost to build can change significantly in that time, as can advancements in technology. Telling the story means getting smarter with data collection and being able to serve up those insights in a simple and compelling way, particularly if you may only have 20 minutes to convince senior stakeholders.

Capacity modelling looking at the consequences of action or inaction, such as in response to flooding or bushfires, is highly effective for weighing up different decisions. It's also useful to engage specialists to understand unit rate changes so you can better understand the cost of doing things differently.

Consider credits and carbon offsets

Trees are incredible carbon sinks and are arguably the best carbon capture technology there is. Wood is made entirely out of carbon, lasts for years and takes a long time to break down once the tree dies. Knowing how many trees you have may help you better understand your carbon footprint.

In Australia, there is a huge movement toward having more trees to reduce the amount of heat produced given rising summer temperatures. The Greater Sydney Commission is working toward 40% of urban areas being covered in trees by 2056. A similar project is underway in Europe, with the European Commission looking to plant three billion saplings by 2030.

In a broader sense, trees are often utilised to offset carbon emissions while you're in the long-term process of decarbonising operations. Carbon offsets act as a credit that funds action somewhere else in the country or world. These actions may include carbon removal or seeking alternative energy sources. While an over reliance on offsets can be viewed as cheating emission reductions, it can foster the sentiment of community within the nation.

Register your opportunities

Registering opportunities to improve ESG performance helps you be able to identify where you are now and where you can get to. For example, recently Brightly helped an international client deploy an energy target-setting program for their 156 properties. While initially they had some trepidation about investing in energy performance, through tracking and registering opportunities and by setting up workflows, we helped them save \$9 million in energy savings or 12% of their energy costs.

Predict and respond with real-time data

When it comes to energy and carbon performance, the amount of data you can source in real-time using internet of things (IoT) technology is extremely valuable. For example, you may want to track how your equipment is interacting with how warm or cold it is outside, when your lights are turning on or how people are moving across cities, roads and bridges or using public transport. One of

our clients recently told us that for every dollar they spend on analytics, they see a four-dollar return.

Combine that with predictive analytics and you can model the future condition and service level of every asset. You can also optimise your future capital investment programs by directing capital spend to the most appropriate assets at the right time, based upon criticality, obsolescence or climate change.

Conclusion

One thing we know for sure—the ability to gather, analyse and put data to work will play a critical role in re-shaping the future of asset management.

With the help of real-time data through sensors, AI-driven optimisation and strategic asset management, we can capture the exciting opportunities that lie ahead. We already have the tools—it's time to put them to work and create a safer, smarter and greener world for all.



Making smart asset management decisions for the communities we're working for relies on evidence-backed insights – what we know, what we understand and what we can predict about the future.

About Brightly Software

Brightly, the global leader in intelligent asset management solutions, enables organizations to transform the performance of their assets. Brightly's sophisticated cloud-based platform leverages more than 20 years of data to deliver predictive insights that help users through the key phases of the entire asset lifecycle. More than 12,000 clients of every size worldwide depend on Brightly's complete suite of intuitive software – including CMMS, EAM, Strategic Asset Management, IoT Remote Monitoring, Sustainability and Community Engagement. Paired with award-winning training, support and consulting services, Brightly helps light the way to a bright future with smarter assets and sustainable communities. For more information, visit brightlysoftware.com