

# Enhancing quality of life through smarter asset management

By Sally Wright, Sustainability and Performance Lead, Icon Water

Icon Water (formerly ACTEW Water)\* provides water and sewerage services to the Canberra region, producing some of the highest-quality tap water in the country through the rigorous storage and treatment of water, and operating safe and reliable sewerage services.

**W**ith a wide asset base including dams, treatment plants, pumping stations, reservoirs and mains, and a core purpose to ‘sustain and enhance quality of life’, Icon Water works hard to ensure that these assets are designed, built, operated and maintained as sustainably as possible.

Australia has recently experienced a wave of high capital investment in water projects, largely in response to recent drought conditions. As an example, Icon Water, in response to the ‘millennium drought’ – a 10-year drought that depleted Canberra’s water

supply – did just that and, together with Bulk Water Alliance partners (Abigroup, GHD, John Holland Group and Icon Water), completed a suite of large-scale projects to secure water for the region, to increase resilience against hotter and drier conditions, and to support a growing capital region.

## Asset planning to equip us for the future

As a founding member of the Infrastructure Sustainability Council of Australia (ISCA), Icon Water pursued an Infrastructure Sustainability (IS) rating for the enlargement of its Cotter Dam. This project expanded the reservoir capacity to 20 times its original size, increasing the overall water storage capacity for the Australian Capital Territory region by 35 per cent, and involved building the largest roller-compacted concrete dam in Australia. It was the first project to register with ISCA for an As Built infrastructure sustainability rating, and it helped shape the development of the IS rating tool. The Enlarged Cotter Dam (ECD) project was a sizeable dam construction project of a magnitude rarely seen in Australia.

Using the IS framework, Icon Water developed a range of sustainability-related management plans, including the preparation of health, safety, environment, quality and risk management plans, and a range of sustainability-specific strategies focused on resource use, emission and pollution reduction, waste management, ecology, and people and place, as well as delivering innovation into the project.



Enlarged Cotter Dam with safety considerations paramount to the project

This was a large and complex build that required dedicated resources to address the sustainability needs of the project. There were a number of obstacles that needed to be overcome throughout the design and construction of this project, which created innovative thinking and led to new standards and improvements in technology, safety management, and conservation management.

The results of the project were impressive. The dam build was successful in itself, but it also brought substantial economic benefits to the local region, along with significant environmental achievements and long-term water security, and it incorporated two world firsts in technical design. The project was recognised both nationally and internationally, winning prestigious awards including the 2013 Environmental Excellence Award for Australasia from the International Erosion Control Association; the 2013 Engineering Excellence Award from Engineers Australia; the Australian Water Association 2013 National Award for Program Innovation for the fish conservation program within the dam project; the 2014 Sustainable Solutions in Public Works National Award from the Institute of Public Works; and the 2014 National Civil/Infrastructure Award at the Master Builders Australia Awards.

Some of the logistics of applying the IS rating to a project of this size meant that capturing evidence with numerous alliance stakeholders was complex. The project took six years to complete, and involved a build that required many areas of assessment to be undertaken by a range of stakeholders operating under the Bulk Water Alliance. A lesson that was learnt for future large-scale projects with numerous partners is to establish a repository up-front to ensure that evidence is captured in a central location from the start of the project.

The project was completed in October 2013, and achieved an IS As Built v1 Commended rating in August 2014.

### Making assets work harder for the money

There is a global shift being reflected in water industry trends from a 'new build' philosophy to a 'no build' philosophy that responds to a market constrained not only by budgets, but also by resources<sup>1</sup>.

Icon Water is following suit, realising the importance of maximising value from its water and sewerage investments throughout their life cycle, while also maintaining high-quality products and services.

To do this, the organisation has developed an Asset Management Improvement Strategy, which, over the next five years, will see smaller capital investment projects and smarter capital maintenance, improving the operational efficiency of existing assets and infrastructure.

Icon Water will enhance its asset management performance in line with the ISO 5500 Asset Management Standard, and in conjunction with the Asset Management Council's Capability Delivery Model. This will equip the business with the framework to rehabilitate and maintain its existing assets through effective management and operating regimes, and make its assets 'work harder, for longer'.

### Smaller infrastructure projects – their fit with ISCA

Following this approach, Icon Water undertook to trial the implementation of the IS rating tool on smaller infrastructure projects. It registered for an IS Design rating for a project that replaced the chemical dosing plant at one of its treatment plants – the Googong Water Treatment Plant. This project was delivered in partnership with Tenix through the AAT Alliance.


<sup>1</sup> MWH Global's United Kingdom-based Director of Global Strategy, David Smith, discussed global trends in the water industry in his article 'Let's talk about water' in the Australian Water Association's *Water Journal*, Volume 41 No 5, August 2014.

Use of the IS rating tool drove a higher level of investigation into the project building footprint, energy use requirements and materials use, which, in turn, resulted in lower construction costs and less cut and fill required, and kept construction materials sustainable.

The logistics of applying the rating tool to small-scale projects, however, meant that some sustainability aspects within the tool were not relevant for the size of this project, which created a bias towards the remaining assessment fields.

In addition, applying the tool for small projects was found to be effort-intensive, because smaller project teams are typically not resourced with a dedicated environmental officer, and additional tasks are not easily absorbed by a project team working across multiple projects. A learning for future smaller projects is that the labour costs to implement the tool in its current form are likely to be higher as a proportion of the total project budget than larger-scale projects. This needs to be factored in at the initial scoping stage of the project.

Overall, however, adoption of the tool in the design phase drove a more thorough examination of key design objectives and opportunities for the project, and led to more innovation as a result, with energy models built for the Googong project now being applied to other Icon Water infrastructure projects.

The design phase of this project achieved an IS Design v1 Commended rating in August 2014. 

\*On 4 May 2015, in its centenary year, ACTEW Water rebranded to Icon Water to realign its goals and reinforce its commitment to the community. Faced with the challenges that a growing inland city bears, Icon Water aims to become the premier, most trusted water utility in Australia. This vision leaves the newly rebranded Icon Water with the opportunity to refocus its objectives to remain innovative and sustainable for generations to come.

# Acting today, with the future in mind

Sustainable solutions and innovative construction are essential when building future-proofed infrastructure and resources for our communities.



As a core value of its business, McConnell Dowell provides training and development to ensure that the importance of sustainability is echoed across the entire workforce. Sustainability has been a key contributor to the growth and success of the McConnell Dowell brand for more than 51 years.

The ability to deliver smart, safe and sustainable solutions for clients has moved the company forward, from a small-scale construction company to a major international industry contributor.

McConnell Dowell sees sustainability as a challenging, but incredibly rewarding, opportunity to provide real strategic value to clients. The company delivers sustainable solutions through careful planning and decision-making stages that consider sustainability from early on, and, in doing so, harnesses opportunities, manages risks and affords innovation.

McConnell Dowell embraced the Infrastructure Sustainability (IS) rating tool early in its development, registering the Gold Coast Light Rail (GCLR) project to the scheme in 2011. The scheme has delivered many benefits around sustainability and communication.

The scheme:

- provides a common language – the growth of ISCA and the increasing prevalence of the IS tool creates a common language around sustainability for those in the business of infrastructure delivery. This ensures a clear and comprehensible shared language
- provides a common standard – the IS tool also builds a common and coherent quantifiable standard to benchmark projects across many asset types throughout the industry

- encourages innovation – the scheme creates a new and improved standard for individual organisations, such as McConnell Dowell, and the industry as a whole to ‘get smart’ in terms of approaches to project delivery. It encourages creativity throughout the whole project life cycle
- presents new opportunities through innovation – the tool outlines very clear actions, activities and processes that can be carried out, which are not necessarily part of the construction industry’s business-as-usual approach.

As a long-time advocate of ISCA, McConnell Dowell corroborates and supports the increased focus on sustainability within project development.

With a dynamic and proactive approach to sustainability, McConnell Dowell makes good on its motto: ‘We act today, with the future in mind.’ **C**



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# ISCA – setting the standard

By Nicole Rogers, Environmental Operations Manager, McConnell Dowell Constructors



Riverbank Precinct Pedestrian Bridge, Adelaide, South Australia

As a long-time supporter of ISCA and its Infrastructure Sustainability (IS) rating tool, McConnell Dowell is heartened to see the increasing requirement on the part of project proponents to seek and achieve an IS rating.

Sustainability and continuous improvement are, of course, so much more than just numerical ratings generated within a spreadsheet; however, McConnell Dowell sees that there are a number of reasons that the IS tool and its increasing usage is truly significant from a construction industry perspective. Some of these reasons are listed here.

- **A common language** – as those who’ve worked in and around sustainability for some time will understand, there are myriad definitions of the term floating around. As such, the term has become somewhat overused and undervalued as a result. The

growth of ISCA and the increasing prevalence of the IS tool creates a common language around sustainability for those in the business of infrastructure delivery – a clear and easy-to-understand shared language.

- **A common standard** – as well as assisting in creating a shared level of understanding of the term sustainability and its key component elements, the IS tool also creates a common quantifiable standard against which to benchmark projects across industry and asset types that, again, is very clear and easy to understand. And as this clearly defined industry-backed standard, it makes for a very compelling message for those of us encouraging more sustainable construction and project delivery practices.
- **It encourages innovation from the common standard** – while the IS tool provides a common denominator as to standard approaches to sustainability, it also creates a new, higher bar for individual organisations, such as McConnell Dowell, and the industry as a whole, to ‘get smart’ in terms of approaches to project delivery.

It encourages innovation throughout the whole project life cycle, both on the macro scale (for instance, project optioneering), down to the micro scale (for instance, materials and goods specification and installation).

- **Innovation presents new opportunities** – the tool outlines very clear actions, activities and processes that can be carried out, which are not necessarily part of the construction industry’s ‘business as usual’ approach. Here lie some fantastic new opportunities for McConnell Dowell as an organisation, and within the wider industry, to change things up. It presents new challenges, too. It is often the types of challenges that we butt up against that demonstrate the need to change how something is done, and for us to take the next step forward in improving processes, systems and more sustainable approaches to project delivery.
- **It provides a working guidance framework** – we find that one of the key strengths of the IS tool is that it can be used as a guidance framework (not just a snapshot-in-time rating), helping sustainability champions have those discussions with their team, shaping the direction of a project, and significantly informing key project decisions.
- **More transparent planning** – with a more standardised approach to what has been a rather nebulous, difficult-to-pin-down concept in the past, the IS tool and approach makes it much easier for project proponents to specify sustainability elements in contracts. This approach also makes it much easier for us as constructors to plan for and ultimately price for our clients, creating a much more transparent approach to defining the new business as usual. [C](#)

# Infrastructure sustainability and valuation

Quality infrastructure underpins every successful economy



John Farrant



Megan Raynal


Infrastructure valuation specialist Value Adviser Associates (VAA) not only considers expected cash flows from infrastructure investments, the company also considers risks and opportunities arising from environmental, social and governance (ESG) factors.

VAA is a signatory to the United Nations Principles for Responsible Investing (UNPRI) and has incorporated ESG factors into infrastructure valuations for many years.

VAA has found that infrastructure assets with strong governance and low environmental and social risks perform better than other similar assets.

For example, VAA valued two similar water utilities over a number of years. The utility with superior governance and a stronger sustainability focus has provided superior investment returns.

VAA regularly speaks with infrastructure fund managers and superannuation funds investing in infrastructure, and has found that there is broad agreement that assets that are managed on a more sustainable basis tend to perform better. Many investors apply an 'ESG lens' to their investments, and sustainability can affect bid pricing.

The evidence from years of deal outcomes and valuation analysis is that sustainability produces measurable financial benefits to investors as a result of (to name but two factors) reduced risk of 'black swan' events and lower return covariance. 



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# ISCA supporting industry collaboration

In a powerful show of solidarity, leaders from Australia's construction and infrastructure industry have joined forces to launch the Australian Supply Chain Sustainability School (Australian School). This online learning platform is aimed at increasing competitiveness, sustainability knowledge and competency down the construction and infrastructure supply chains in Australia.

The Australian School has been made possible through the collaborative efforts of eight founding partners: John Holland, Mirvac, Stockland, Downer Tenix, McConnell Dowell, DuluxGroup, Laing O'Rourke and the Infrastructure Sustainability Council of Australia (ISCA) – with additional funding and support from NSW Trade and Investment, Sustainability Victoria and Construction Skills Queensland. The Australian School is being delivered by the Net Balance Foundation, with support provided by Ernst & Young (EY).

Asset owners, developers and Tier 1 contractors understand the business value that is created with higher levels of sustainability performance. This depends greatly on the sustainability of suppliers and subcontractors. Leveraging the success of the multi-award-winning United Kingdom model, the Australian School is an online education platform aimed at helping construction suppliers and subcontractors to develop their sustainability knowledge and capabilities.

This collaboration will act to build collective sustainability knowledge, enhance the industry's standards, and place organisations in better positions to meet future sustainability challenges and opportunities.

The Australian School will provide suppliers, subcontractors and service

providers with the tools to meet increasing sustainability demands, and performance benchmarks, in a cost-effective manner by providing a wealth of free, online, sustainability-focused resources.

A confidential online self-assessment tool allows organisations to freely assess their current sustainability strengths and identify areas that are in need of development, thus providing a bespoke sustainability action plan.

A resource library contains carefully selected best-practice sustainability tools, e-learning modules, case studies, and links to online resources. These resources provide a valuable opportunity for suppliers and contractors to further their knowledge through self-study, and gain awareness of higher sustainability standards in construction and infrastructure projects.

The Australian School also provides a hands-on experience, with face-to-face training courses and supplier days hosted by the Australian School's founding partners. This offers a valuable opportunity to network, hear about the future of sustainability within the construction industry, and speak directly to the procurement and sustainability staff of the Australian School's major contractor partners.

The message from the United Kingdom School's experience is clear – with proper management and support, the supply chain can deliver sustainability requirements while becoming more productive, efficient and cost-effective. The same benefits are expected for Australia's construction and infrastructure sectors.

Bringing Australia's supply chain up to speed on sustainability best practice is expected to deliver a number of benefits

across multiple themes for supply chain members and partners.

Construction and infrastructure supply chains are engaged to register their membership to the Australian School. Launch events will be held nationally throughout 2015 to showcase the Australian School and its benefits for the industry, and founding partners of the Australian School will host a series of supplier days to engage with their supply chains. Founding and funding partners of the Australian School will disseminate learnings and share progress at industry-related forums.

As a founding partner, ISCA supports and contributes to the strategic direction of the Australian School. The vision and guiding principles of the Australian School are well aligned with ISCA's mission of enhancing the livability and productivity of communities through advancing sustainability in infrastructure planning, procurement, delivery and operation. The Australian School complements ISCA's objective, as it is aimed at educating the broader supply chain to develop a common understanding of best practice sustainability solutions. This will help the construction and infrastructure sectors to tackle sustainability risks and opportunities. **C**

To learn more about the Australian School, or to get involved, visit [www.supplychainschool.org.au](http://www.supplychainschool.org.au). For further information on how you can get involved and support the Australian School, please contact the Service Partner, EY or the Australian School Co-Chairs.

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More and more transport projects are being registered for an IS rating in Australia and New Zealand.

Arup are proud to be working closely with ISCA to ensure the delivery of sustainable infrastructure projects.

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# Incentivising more economically sustainable outcomes

By Marlon Kobacker, Principal Sustainability Consultant – Advisory, AECOM

The integration of an economic theme into ISCA’s Infrastructure Sustainability (IS) rating scheme will add to the strengths of the existing IS rating tool, to extend its holistic triple-bottom-line (TBL) approach to assessment. This will further incentivise industry to design and construct projects, and operate assets, that deliver best practice environmental, social and economic outcomes.

The original IS rating scheme framework identified the need for an economic theme within the TBL nature of the IS rating tool. Many businesses and non-profit organisations have adopted a TBL sustainability framework to evaluate their performance, and a similar approach has gained currency with governments at the federal, state and local levels. ISCA members and stakeholders have indicated that inclusion of an economic theme would be highly valued.

ISCA’s inclusion of economic criteria is a world-first for infrastructure sustainability rating schemes, building on and learning from other schemes such as CEEQUAL in the United Kingdom, and Envision in the United States, which currently have a limited focus on finance and economics.

The intent of this new theme is to reward and incentivise governments and businesses that improve the economic sustainability outcomes of infrastructure projects while preserving or restoring environmental and social capital. It seeks to encourage leading governance practices, such as rigorous

options analysis, transparency and independent verification, as well as leading financial and economic practices, such as whole-of-life optimisation of financial performance, valuation and maximisation of societal returns, and monetisation of environmental and social impacts within cost benefit analysis.

In 2014, ISCA was awarded funding by the Department of Infrastructure and Regional Development to develop the economic theme, and a scoping study was then completed to investigate and better understand requirements for its development.

The scoping study was delivered via collaboration between ISCA and AECOM, with guidance and technical input from an Economic Advisory Group comprising industry leaders in the field of infrastructure finance, economics and governance.

The study produced a proposed theme framework (shown in Table 1) including potential new categories and credits (highlighted in blue), and some existing credits proposed to be modified (highlighted in orange).

*“The scoping study was delivered via collaboration between ISCA and AECOM, with guidance and technical input from an Economic Advisory Group comprising industry leaders in the field of infrastructure finance, economics and governance”*

This framework was used to develop a scope and plan for full theme development, which is scheduled for completion during 2015. The economic theme will then be piloted by industry. Once the pilot process is complete, feedback will guide the final development and incorporation into a version 2.0 of the IS rating scheme in 2016.

As the IS rating scheme continues to gain market traction and is applied earlier in the project life cycle, it is anticipated that the economic theme will drive change towards leading economic governance and decision-making practices that will result in better societal returns at a lower financial and environmental cost. **C**

### The Economic Advisory Group

- Mark Buckley – Economic Advisory Group Chair. Manager Safety (Rail & WHS), Quality & Environment, Country, John Holland
- Pablo Berrutti – Head of Responsible Investment Asia Pacific, Colonial First State Global Asset Management
- Corey Dykstra – Manager Financial Evaluation, WA Water Corporation
- Dr Mark Harvey – Research Manager, Regulatory Reform and Investment Analysis, Department of Infrastructure and Regional Development
- Joe Langley – Technical Director, Infrastructure Advisory, AECOM
- Dugald Murray – Chief Economist, Australian Conservation Foundation
- Jeremy Nott – Director Social Policy, Department of Treasury and Finance, Victoria
- John Vida – NSW Engineering Manager, Engineering, Lend Lease

**Table 1**

CATEGORY	CREDIT	SUCCESSFUL OUTCOMES
Economic	Financial Analysis/ Performance	<ul style="list-style-type: none"> <li>• Best whole-of-life financial net present value (NPV) cost</li> <li>• Less cost (present value), forward thinking, planning</li> </ul>
	Economic Analysis/ Performance	Realistic/consistent outcomes and expectations, no skewed results
		Best whole-of-life economic NPV, realise economic benefits/value
		Optimal allocation of stocks/capital scarce resources
Decision-making	Decision-making	Maintain or improve distributional benefits
		<ul style="list-style-type: none"> <li>• A good set of options is considered, stretching to non-asset, technical limits and sustainability options</li> <li>• Less surprises, real options approach (reduce over commitment)</li> <li>• Sustainability benefits realised (genuine triple bottom line)</li> <li>• Project optimisation, improved societal return, best initiative selected (and demonstrable), need to do analysis for construction and O&amp;M</li> <li>• Good framework and measures</li> </ul>
Stakeholder participation	Stakeholder Engagement Strategy & Level of Engagement	Maintain/improve distributional benefits – communications, contractor, client, communicate participate, value
Management Systems	Foundations	Continually check review/change, communication and understanding
		Articulated
		Engagement, align, transparent, clear
		Good inputs, independence
		Accountability, social return, project effectiveness, truth in reporting
	Internal and external distribution/knowledge-sharing Policy impact statement	
	Assurance	Consistent, structured, broad range assessment
Measuring Sustainability	All relevant credits across the IS rating tool	<ul style="list-style-type: none"> <li>• Measure and report real, quantified and monetised sustainability costs and benefits</li> <li>• Demonstrate the sustainability business case</li> </ul>

# Workforce theme

The Infrastructure Sustainability (IS) rating scheme was developed and then piloted in 2012. Part of the original scope of the rating tool was to include a ‘workforce’ theme and an ‘economic’ theme. Due to funding and scope constraints, these two themes were not developed with the rest of the rating tool; rather, they were put on hold for development as part of a future version of the IS rating tool.

Funding for a scoping study for the theme was kindly provided in 2013 by Thiess. The scoping study kicked off in January 2014, with in-kind support also provided by John Holland Group.

The scoping study aimed to investigate and better understand the requirements for developing a workforce theme for incorporation into the IS rating scheme. Specific objectives are to deliver the following key outcomes:

- an agreed set of categories and likely credits
- identification of some of the key requirements and inputs necessary to scope and cost full theme development.

The study was delivered by ISCA with guidance and technical input from a

*“To complete the development of the new workforce theme, ISCA needs to secure funding for the full theme development phase of work”*

Workforce Advisory Group comprising industry leaders in the fields of:

- health and safety
- wellbeing
- diversity, Indigenous
- diversity, women
- fairness, local employment, suppliers
- education and skills development
- sustainability awareness.

### The Workforce Advisory Group

The Workforce Advisory Group consisted of the following industry leaders:

- Lisa Morgan, GM Diversity, Thiess
- Katriina Tahka, Director, Partnerships and Sponsorships, Diversity Council of Australia
- Jorgen Gullestrup, Chief Executive Officer, Mates in Construction
- Claire Parry, Director, Hiller Parry (representative of Transport for NSW)
- Tania Crosbie, Director, Sustainability at Work
- Hamish Griffin, General Manager, WorkPac
- Bernie Scully, State Director, Assure Programs.

**Table 1: Topics and sub-topics that are part of the scoping study**

CAPABILITY AND CAPACITY	WORKFORCE SAFETY, HEALTH AND WELLBEING
<ul style="list-style-type: none"> <li>• Knowledge/sustainability awareness</li> <li>• Corporate knowledge</li> <li>• Learning and development</li> <li>• Career management</li> <li>• Strategic planning</li> <li>• Legacy</li> <li>• Performance/ competency</li> <li>• Job design</li> </ul>	<ul style="list-style-type: none"> <li>• Active living</li> <li>• Physical health</li> <li>• Mental health</li> <li>• Safety in design</li> <li>• Safety in construction</li> <li>• Wellbeing</li> </ul>



### Scoping study outcomes

The study defined ‘workforce’ (for the IS rating scheme) as the people working (designing, constructing and operating) on the project/asset, including direct employees of all key stakeholders and direct employees of subcontractors. Other less direct parts of a project workforce would most likely be handled through other parts of the tool; for instance, procurement and purchasing, community health and wellbeing, or stakeholder engagement.

The table below shows the key topic and sub-topic areas identified by the stakeholders as part of the scoping study, which may form part of the new workforce theme. It is likely that some of the below topic areas will be incorporated within the existing tool, and some will form new categories and credits.

### Next steps towards full theme development

To complete the development of the new workforce theme, ISCA needs to secure funding for the full theme development phase of work. The new theme, once developed, will be piloted on suitable IS-registered infrastructure projects/assets.

The full theme development will incorporate further industry engagement, most likely with some of the stakeholders who were involved in the scoping study, as well as identifying and engaging with other key industry stakeholders in relevant specialist fields.

The full theme development will not only undertake work to develop and deliver the new theme for the rating tool, but it will also focus on reviewing existing sections of the rating tool so that workforce sustainability is consistently incorporated across the scheme. It will also develop suitable training to facilitate use of the theme by industry.

### Benefits to industry

The infrastructure industry provides employment for a large number of Australians contributing to skills development, job creation and economic productivity. For example, the \$8.3 billion North West Rail Link project, currently under construction, is expected to provide more than 16,000 jobs. At the same time, the work comes with potential safety, health and wellbeing risks to workers, their families and their communities. The

work can be stressful, requiring long and sometimes unusual hours. The industry faces considerable challenges, such as an ageing workforce, loss of corporate knowledge, high labour costs, restrictive and traditional cultures, and career intermittency.

Good workplaces seek to address these challenges through:

- protecting workforce safety, health and wellbeing
- strategically managing workforce capability and capacity
- maintaining good workforce relations through treating workers fairly and seeking genuine engagement
- promoting an inclusive culture and environment.

Consequently, these approaches lead to a workforce that is more productive and innovative. The workforce theme will seek to recognise and reward good performance in these areas.

ISCA looks forward to fully developing the workforce theme and rolling it out to industry as part of rating scheme updates in future.

WORKFORCE RELATIONS	DIVERSITY AND INCLUSION
<ul style="list-style-type: none"> <li>• Equal employment opportunity (EEO)</li> <li>• Privacy</li> <li>• Fairness</li> <li>• Recognition and reward</li> <li>• Communication</li> <li>• Employee engagement</li> <li>• Industrial relations</li> <li>• Organisational development</li> </ul>	<ul style="list-style-type: none"> <li>• Cultural awareness</li> <li>• Cultural heritage</li> <li>• Organisational culture</li> <li>• Supply chain</li> <li>• Inclusive employment</li> <li>• Flexibility</li> <li>• Workstyles</li> <li>• Language, literacy and numeracy</li> </ul>

# Climate Change Adaptation category revision

ISCA is in the process of reviewing the Infrastructure Sustainability (IS) rating scheme's Climate Change Adaptation category, with assistance from the Australian Government Department of the Environment.

ISCA recognises that providing guidance on climate change adaptation is a relatively new field, and that best practice is evolving. Accordingly, a project to update the IS rating tool's Climate Change Adaptation category to reflect advances in adaptation planning and performance, innovations, and the improved understanding of climate change projections and impacts, has commenced.

Other categories will also be reviewed as part of the IS v2.0 program to ensure that the IS rating scheme continues to drive a transformation in the sustainability performance of Australian infrastructure. The Climate Change Adaptation category was an appropriate starting point, as this was the first category to undergo pilot testing and formalisation as part of IS version 1.0.

The original Climate Change Adaptation category rewarded climate change risk identification and the implementation of adaptation measures. ISCA recognises that industry has seemingly advanced beyond this benchmark, and that the altered intent of any revised category will therefore need to recognise the deep uncertainty of future climates, as well as rewarding good adaptation outcomes, rather than simply rewarding cursory consideration of the climate risks.

This project kicked off in late 2013, and is currently 90 per cent complete. The intent of this revision is to update the current category to incorporate the latest developments in climate change risk assessment and

adaptation planning, and to expand the category to incorporate the rating of infrastructure resilience to the impacts of climate change and natural disasters. Stakeholders have suggested that the revised category might be renamed 'Adaptation and Resilience'.

A literature review was undertaken along with industry consultation, where required, to identify new best practice in climate change adaptation management. To date:

- category and credit benchmarks have been updated
- required revisions to the version 1.0 additional guidance have been identified
- the structure and general approach for the additional guidance have been defined
- the updated category is being peer reviewed.

While the revision of the Climate Change Adaptation category based on the outcomes of the peer review has not yet been finalised, a summary of the general changes is provided below.

The risks posed by climate change to infrastructure assets are significant. In Australia, up to \$226 billion of assets, including existing commercial, industrial, road, rail, and residential assets, will be exposed to coastal climate risks around our coastlines by 2100 (DCCEE 2011).

State and territory governments are acting now to better manage these risks through building climate risk information and working with relevant decision-makers to develop adaptation approaches to manage risks. Many state and territory governments are also working with communities, business and the public sector to improve adaptation planning, and to establish state-based adaptation policies.

A number of leading Australian businesses and infrastructure agencies are instituting plans, policies and processes to assess and reduce the vulnerability of their assets. Several other public agencies, including major port operators, state development agencies and electricity network providers, are pursuing similar initiatives.

Planning for a changing climate delivers multiple benefits to applicants; it improves the resilience of assets to existing and future climates by reducing the risk of early deterioration of infrastructure; and it helps to sustain levels of service delivery and manage damage costs. A thorough assessment of climate risks further improves the awareness of related risks to service delivery, and risks to interdependent assets and services.

This category now seeks to reward practices that improve asset resilience to current and future climate risks. The updates to the category will assist applicants with detailed guidance to:

- identify, assess and address climate risks
- identify and implement options to manage risks
- work with stakeholders to build ownership and shared understanding of risks to assets, as well as between other assets and services, to improve overall resilience of operational systems
- consider climate risks today, and over a longer time frame, remaining adaptable to changes in information and circumstance. [C](#)

# Regional Rail Link – sustainable innovation for Victorian Rail

**R**egional Rail Link is a \$4 billion project to remove bottlenecks in Victoria's rail network. RPS worked on an alliance delivering one of the project's six work packages. Part of the company's role was to minimise environmental impacts and achieve 13 sustainability targets in areas such as carbon, energy, water, waste and materials use.

RPS translated these targets into a clear strategy and specific activities. By working closely with the design and delivery teams, the company ensured that sustainability was integrated into planning, procurement and delivery. RPS ran training so that every worker understood the project's environmental issues and sustainability targets, and encouraged staff to submit their own

ideas for innovation. RPS also engaged early on with suppliers to ensure that they could play their role.

The alliance exceeded its environmental and sustainability targets, which included recycling materials, carbon and energy reduction, avoidance of potable water use and community engagement. Approval was gained through the project for the use of many innovative products with long-term sustainability benefits for the Victorian rail industry.

Regional Rail Link won the Premier's Sustainability Award 2014 in the Infrastructure and Buildings category, recognising efforts to reduce construction phase energy and carbon emissions by 20 per cent. **c**



## Successful partners delivering quality

RPS is a recognised leader in infrastructure sustainability and climate risk and resilience. We help shape and deliver leading-edge sustainability and climate change requirements for a wealth of public and private sector infrastructure clients. Our team comprises ISCA Accredited Professionals who are experienced in working as part of an embedded project team and as external specialist advisors.

RPS has provided strategic sustainability advice and expertise on many significant infrastructure projects in Australia, including North West Rail Link (NSW), Sydney Metro (NSW), Regional Rail Link (Vic) and East-West Link (Vic).

[rpsgroup.com.au](http://rpsgroup.com.au)

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# IS in planning

Across the infrastructure life cycle, there are a number of ways that the Infrastructure Sustainability (IS) rating scheme is currently being used:

1. **Certified ratings:** This involves formal registration of infrastructure projects or assets, assessment, and subsequent verification and certification of a rating through ISCA. Projects can be certified for Design, As Built and Operation ratings.
2. **Informal assessment:** ISCA encourages the use of the IS rating tool to improve the sustainability of design, construction and operation of all infrastructure projects and assets. IS can be applied to self-assess the sustainability of projects without always registering and seeking verification.
3. **Planning:** The IS rating tool is also being used to assess projects at various stages during infrastructure planning to support the project initiation, development and procurement processes.

The use of the IS rating tool is well documented and understood for formal certification and informal assessment,

and the traction in regards to registered and certified ratings has been outstanding. The application of IS in the infrastructure planning stages, however, has been unguided, variable, evolving and, until recently, unsupported by ISCA. Since the launch and use of version 1.0 of the IS rating tool, stakeholders from the infrastructure industry have indicated that guidance on the use of the IS rating scheme in the planning stages would be highly valued.

### The need for sustainability to be considered in planning

It is generally accepted that it is during the planning of a project that the greatest opportunities are presented for optimising sustainability outcomes. Consideration of sustainability should begin in project planning. This is because many of the early project decisions have a significant impact on options available for making sustainability improvements. The planning stages are a time of minimum constraints, minimum cost commitment and maximum opportunity for considering alternative options to satisfy sponsor objectives and apply sustainable thinking. The lack of early sustainability planning does not preclude later consideration of sustainability,

but concepts introduced in later stages may be constrained by decisions made earlier. The progressive sustainability value-adding involvement of the sponsor, designers, contractors and operators is illustrated in Figure 1.

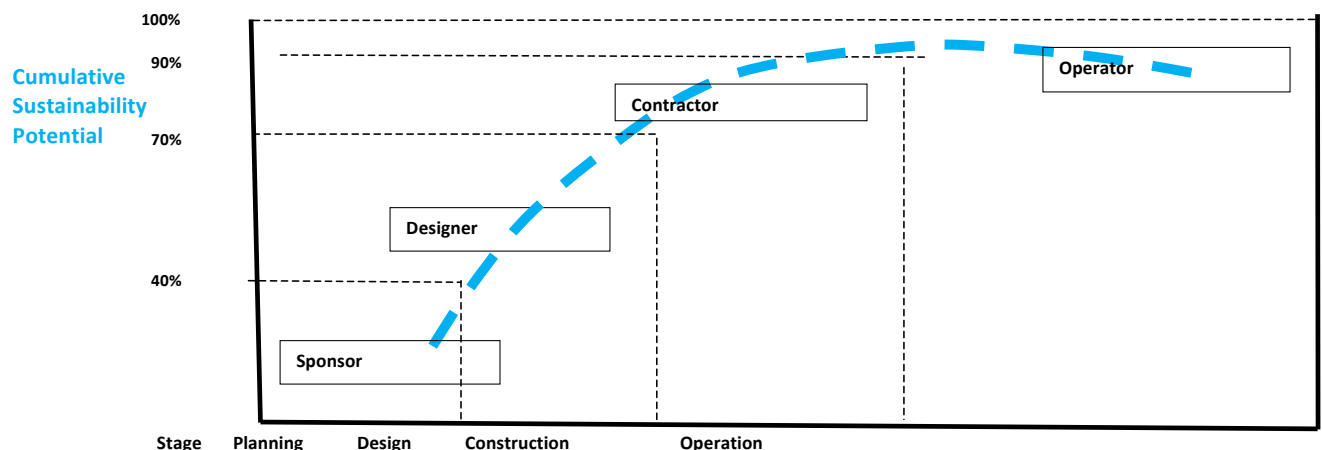
### How the tool is already being used in planning

Beyond use for ratings during the project delivery phase, the IS rating tool is also being used to support the various stages of infrastructure planning to provide guidance to the project initiation, development and procurement processes, and to set projects up to achieve sustainable outcomes in the delivery phase. The application of IS in the infrastructure planning stages has been supported by ISCA through early registration and providing support regarding known and proven best practices to integrate sustainability into infrastructure planning processes, with the aim of improving productivity and achieving more sustainable outcomes.

ISCA currently provides the following support during the planning stages:

- support to develop an IS rating Management Plan, which is a live

Figure 1. Sustainability potential chart



*ISCA has a vision for enhancing the IS rating tool based on the fundamental principle that the greatest opportunities to add value and provide improved sustainability outcomes are at the early stages of infrastructure planning*

document to guide the IS rating through the project development phase, and then into and through the project delivery phase

- support to incorporate the IS rating into the project, including clarifying aspects such as base case design and footprints, allocation of credits and likely scope-outs
- facilitating workshops to share and discuss ideas for sustainability initiatives
- facilitating an IS network for similar projects/assets in Australia to discuss sustainability issues/opportunities and IS ratings
- facilitating an early verification of the 'concept design' to provide early feedback and confidence about likely ratings, and potentially to assist tender evaluation
- support to incorporate the IS rating into the tendering process, clearly describing the requirements and aspiration for the project; for

example, 'Must achieve an Excellent rating with an aspiration to achieve a Leading rating'.

The Planning Guidelines will document, further formalise, and standardise this support service.

**The need for guidance**

ISCA has a vision for enhancing the IS rating tool based on the fundamental principle that the greatest opportunities to add value and provide improved sustainability outcomes are at the early stages of infrastructure planning. The vision is:

To provide practical, industry-based guidance on known and proven best practices to integrate sustainability into infrastructure planning processes, with the aim of improving Australia's productivity and achieving more sustainable outcomes.

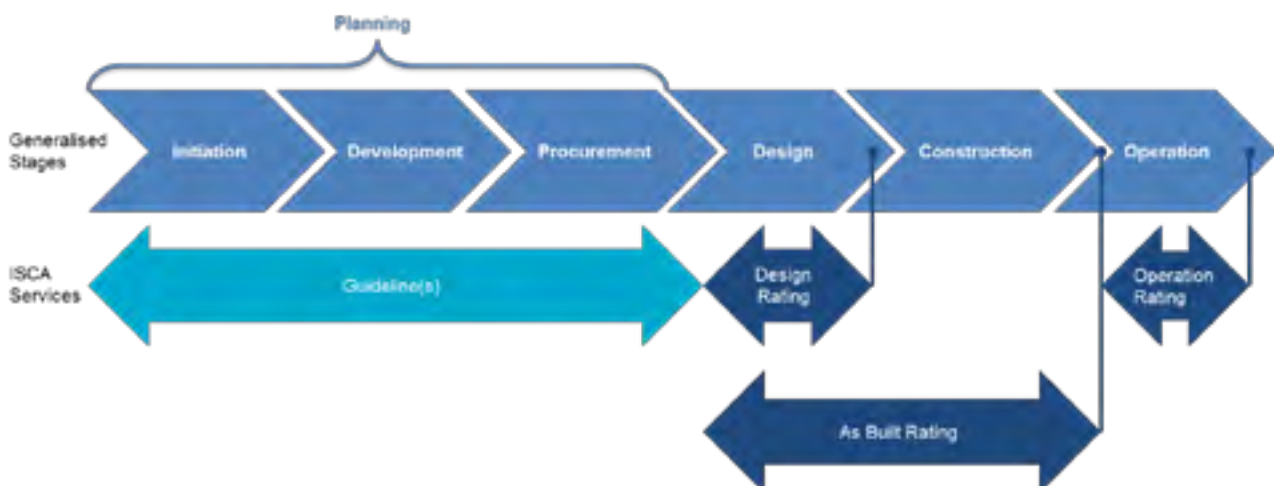
Development and publication of the Planning Guidelines will encourage more infrastructure sponsors to consider sustainability during project planning, and to continue on to ensure that sustainability outcomes are achieved during project delivery. It is envisaged that the guidelines may be a first step towards a further rating type(s), and/or the expansion of existing categories with additional credits to accommodate the planning aspects of projects.

**The planning process and the infrastructure life cycle**

The infrastructure stages intended to be covered by the guidelines are broadly termed as the infrastructure planning stages, which include initiation, development and procurement. How these relate to the current rating types is illustrated in Figure 2.

**The project**

A project is underway to develop the guidelines for how to use the IS rating scheme to incorporate sustainability considerations and outcomes into infrastructure planning. The project commenced mid-2014, and is due for completion in 2015. The project has included multiple workshops with projects applying IS during the planning phase that were either forward-looking (planning for upcoming activities) or retrospective (learning lessons from activities already undertaken).



### Initiation and development stages guidance

During the project initiation and development stages, consideration of sustainability includes:

- making a commitment to sustainability from the outset, and reaffirming it at key milestones
- identification of strategic objectives that the project should contribute to achieving. These should include consideration of sustainability objectives, including those of stakeholders within the sphere of influence
- strategic/network analysis incorporating broad sustainability aspects rather than just cost and expected future demand
- life cycle thinking, and including infrastructure owners in the initiation process
- options analysis, including a broad range of options and incorporating sustainability aspects
- setting sustainability objectives for the project
- risk and opportunity analysis incorporating sustainability aspects
- identifying all stakeholders and engaging with key ones at a high level of participation and decision-making
- business cases incorporate sustainability costs and benefits – not just financial or economic ones
- business cases and project delivery briefs consolidate and pass on sustainability approaches and initiatives identified
- advisers need to have commitment to, and expertise in, sustainability
- impact assessment and approvals should ensure that all sustainability aspects are covered, and that suitable baselines are established to measure the effectiveness of later delivery stages
- design development that includes working with key stakeholders and addressing their concerns
- budget allowances made for activities to address and ensure sustainability aspects.

### Procurement guidance

During the project procurement stage, consideration of sustainability includes:

- reaffirming a commitment to sustainability
- briefing the market on the project and the importance of sustainability aspects
- ensuring and building appropriate market sustainability competency
- expression of interest process emphasising importance of sustainability, describing the high-level targets and approach being taken, and flagging how this will be considered in the tender process
- request for proposal process detailing the approach to sustainability and requesting key sustainability information, including commitment, capability and approach
- a good flow of information from the initiation and development stage work on to tenderers to ensure that they build on the sustainability achievements already developed
- tender interactives include addressing sustainability aspects
- sustainability targets and requirements are locked into appropriate contract clauses
- use of sustainability incentive frameworks where appropriate
- evaluation processes specifically considering sustainability aspects.

### What will the guidelines look like?

The guidelines are expected to answer the following questions:

- Why consider sustainability?
- How can the IS rating scheme framework assist?
- When should the framework be used (to assist which decisions)?
- What gets applied (the whole IS rating scheme or certain parts), and how?
- Who would apply the scheme (i.e. which stakeholder/s)?
- What is ISCA's role beyond certified ratings (for example, independent verification of sustainability benchmarking assessments)?

The guidelines should inform:

- the consideration and valuation of sustainability in project decision-making
- business case preparation
- assessments and reviews, including gateway reviews
- environmental assessment and approval processes
- stakeholder engagement processes
- identification of risks and value creation opportunities
- benchmarking processes
- development of project team culture
- internal awareness and capacity-building
- supply-chain stakeholder engagement
- project procurement processes and documentation associated with:
  - » EOI
  - » RFT or RFP
  - » tender preparation and evaluation
  - » contract award.

The guidelines are being written to align with industry-accepted and typical approaches to project management, and to use terms that should be readily understood by project managers.

### Current status and next steps

The draft guidelines are currently being workshopped, with several projects using IS during the project planning stages. Following further workshopping and review, the guidelines are expected to be released mid-2015. **C**



# Leaders in infrastructure sustainability

Wherever we are in the world, AECOM professionals are united by a common purpose: to positively impact lives, transform communities and make the world a better place.

Whether it's working with clients to integrate sustainability initiatives into infrastructure, or helping build cities' resilience to climate change through the use of a disaster resilience scorecard developed with the United Nations' Office for Disaster Risk Reduction and IBM, sustainability is part of our DNA.

It's this commitment to making sustainability a non-negotiable element of how we do business that saw our own Dr Kat O'Mara, Associate Director – Sustainability, honoured by the Infrastructure

Sustainability Council of Australia (ISCA) in 2014.

Receiving the Individual Leadership in Infrastructure Sustainability award, Kat was recognised for her outstanding performance, leadership and contribution to advancing infrastructure sustainability in Australia and New Zealand.


As the lead Assessor for the Design Rating on Gateway WA – Western Australia's largest road project – and as a Verifier for infrastructure projects seeking ratings, Kat continues to support local ISCA events in Western Australia, and is supporting the delivery of Infrastructure Sustainability Foundation training.

'Encouraging and developing infrastructure sustainably is important

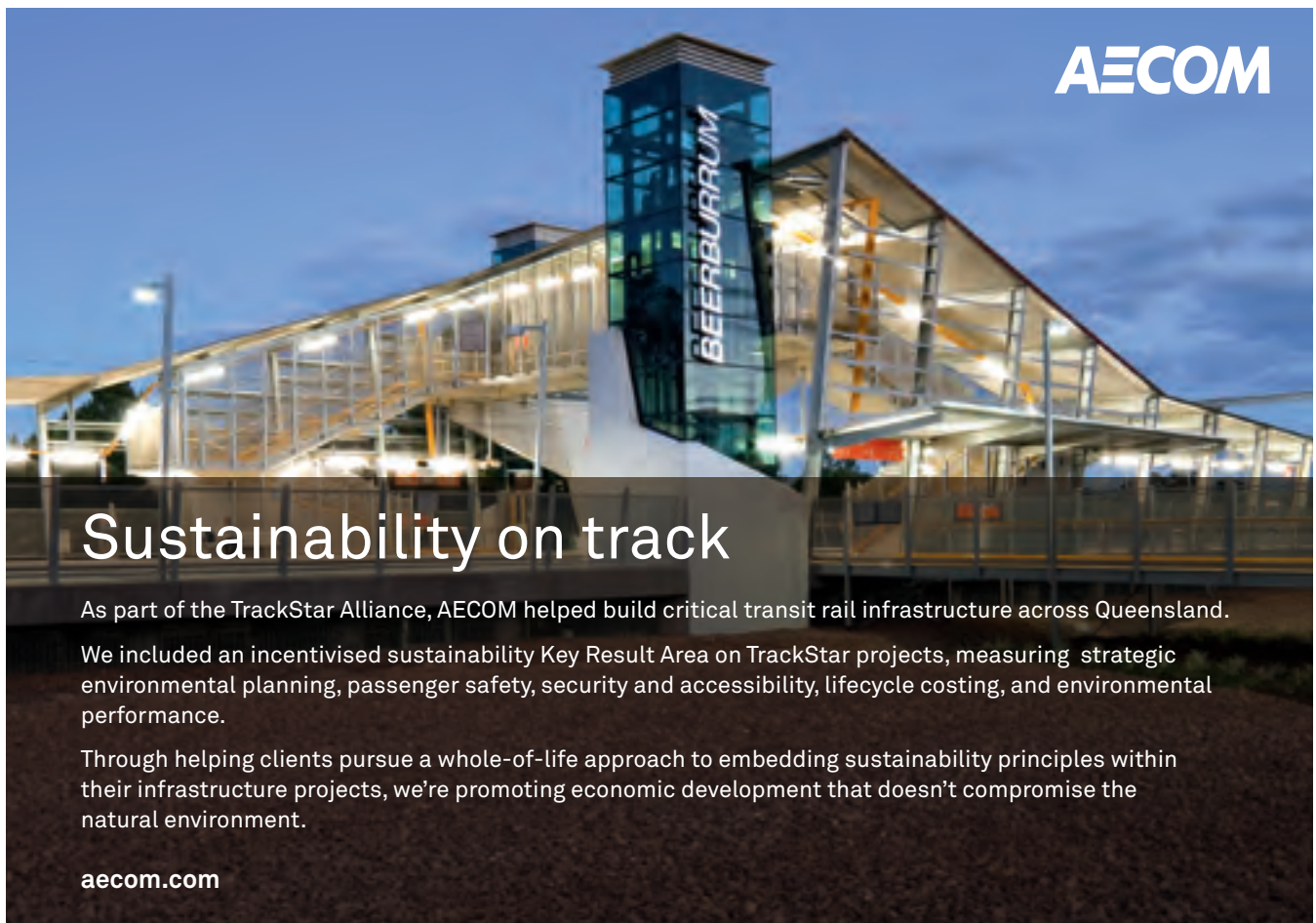


Dr Kat O'Mara, Associate Director – Sustainability

if we want to continue to pursue economic development while enhancing our society and preserving our natural environment,' she said.

'For me it is rewarding to work on, and to hear about, businesses and projects working towards this goal.' 

AECOM is proud to be a foundation member of ISCA. Learn more about our commitment to sustainability at [aecom.com](http://aecom.com).



**Sustainability on track**

As part of the TrackStar Alliance, AECOM helped build critical transit rail infrastructure across Queensland.

We included an incentivised sustainability Key Result Area on TrackStar projects, measuring strategic environmental planning, passenger safety, security and accessibility, lifecycle costing, and environmental performance.

Through helping clients pursue a whole-of-life approach to embedding sustainability principles within their infrastructure projects, we're promoting economic development that doesn't compromise the natural environment.

[aecom.com](http://aecom.com)