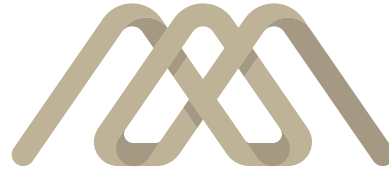




ENGINEERS  
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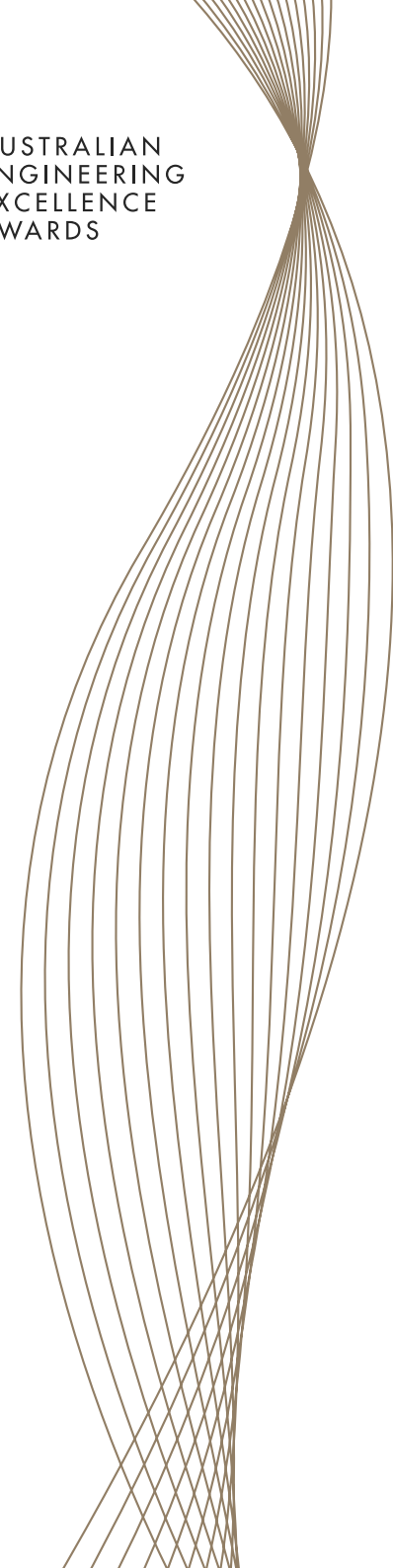
# ICONIC INNOVATION

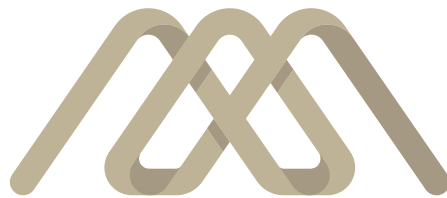
Celebrating Extraordinary Engineering

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AUSTRALIAN  
ENGINEERING  
EXCELLENCE AWARDS

**TASMANIA  
ENTRANTS 2018**





AUSTRALIAN  
ENGINEERING  
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AWARDS

These awards recognise and promote new and innovative ideas that are brought to life in ways that bring fundamental change to our society.

## OVERVIEW

Engineers Australia recognises outstanding achievement in engineering and the invaluable contribution engineering makes to the economy, community and the environment.

The Australian Engineering Excellence Awards (AEEA) inspire and encourage engineering distinction through teamwork, innovation, and technical excellence.

The AEEA is an integrated program resulting in awards at National level once local finalists are determined. To enter the AEEA, entrants are required to submit project nominations at the relevant local level, depending on the project's location.

Excellence, distinction, merit, perfection and quality are the characteristics that winning entries exhibit. View the 2018 entrants.



ENGINEERS  
AUSTRALIA

### Tasmania

Level 5

188 Collins Street

Hobart 7000



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## TASMANIAN PRESIDENT'S MESSAGE



The Tasmanian economy has strengthened in recent years and it is anticipated that this growth will continue for several years with strong demand for infrastructure and niche technology opportunities that supports our economy, quality of life, and importantly, the environment in which we live.

Growth in Tasmania's industry sectors and economy is

largely dependent on the efficiency and effectiveness of the work by engineers who have a significant role in its design, delivery, ongoing operation. The Australian Engineering Excellence Awards recognise those engineers, engineering teams and their clients who have strived for and achieved excellence in engineering. Importantly, these awards promote a culture of engineering excellence that underpins the engineering profession and advances the science of engineering.

I congratulate all those who have strived for engineering excellence and submitted an impressive range of engineering accomplishments for these awards. I would also like to thank the judges for the difficult task of assessing the awards and the team at Engineers Australia who organise the awards and presentation event.



**Phil Gee** FIEAust CPEng EngExec  
NER APEC Engineer IntPE(Aus)

President Tasmania



## CHIEF JUDGE'S MESSAGE



The Tasmanian Engineering Excellence Awards are an important recognition of our achievements in the engineering profession. We have a long and proud history of using innovation and resourcefulness to achieve engineering excellence in Tasmania.

The Awards provide our Tasmanian industry an opportunity to showcase and celebrate the invaluable contribution the engineering profession makes to our society.

All category winners of the Tasmanian Excellence Awards are eligible for entry in the 2018 Australian Engineering Excellence Awards to be held in Sydney in September.

This year we have nine entries that were judged by a panel comprising of senior industry and community members. All winning entries will inherently embody a combination of the attributes of excellence, distinction, merit, perfection, quality, imagination, foresight and virtue. Within each category, projects are evaluated according to their merits.

The judges recognise that excellence in engineering may take many forms - large or small, traditional or cutting-edge, technically complex or elegantly simple.

Projects located anywhere in the world are eligible for entry, provided that a significant element of the engineering component is completed in Tasmania and the work is completed or substantially completed within a 24 month period prior to the closing date for submissions.

This booklet contains the details of the 9 entries for the 2018 TAS Engineering Excellence Awards.

**Keith Midson** FIEAust CPEng EngExec NER  
Chief Judge

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## JUDGING CRITERIA

### **Actual or potential contribution of the work to the economy**

Contributes to the local, regional or national economy by reducing whole of life costs or adding to the efficient use of existing engineering construction, manufacture, maintenance or application.

### **Impact of the work on the quality of life of the relevant communities**

Contributes positively to the communities using it in respect of cost, time, environment or general amenity of the community.

### **Significance of work as a benchmark of Australian Engineering**

Sets new benchmarks or continues current high standards thereby raising the standard and standing of Australian Engineering.

### **Extent to which the work represents world best practice**

Can be matched against similar engineering achievements to represent world best practice.

### **Other considerations**

The environmental impact of the work, the sustainability of the project and the work health and safety consideration. These must outline the effect on those directly or indirectly involved and members of the community in general.

## JUDGES 2018

### **Fiona Ling**

BEng(Agr)(Hons) PhD GradCertMgt FIEAust RPEng  
Director  
WMAwater

### **Elsbeth Moroni**

Fellow IPWEA, Member EA, Member AMC (Asset Management Council), Member AWA (Australian Water Association)  
Manager Asset Services  
City of Hobart

### **Phillip Richard Tompson**

BE(Hons) CPEng FIE(Aust) NER  
Manager Asset Lifecycle Planning  
Managing Director  
Powercom Group Pty Ltd

**Thank you to our panel of judges who generously volunteered their time and effort to review all entrants, and select our Tasmanian Winners and AEEA Finalists.**



 entura

**WE'RE HELPING  
TO BUILD THE  
BATTERY OF  
THE NATION**

(but the nation has room for  
many more batteries)

**WE OWN. WE OPERATE. WE CONSULT.**



## PROJECT ENTRIES

### BURNIE LANDFILL & LEACHATE TREATMENT PROJECT

Syrinx Environmental Pty Ltd



The Burnie Waste Management Centre Leachate Treatment Project is a precedent project, and sustainable solution for managing landfill leachate and creating a positive environmental and community legacy within a decommissioned landfill site. Wetlands and an infiltration

forest were constructed for the on-site treatment and evapotranspiration / infiltration of landfill leachate. High flows discharge directly to a tributary of Cooee Creek, a high conservation value asset. This project is among the first in Australia to integrate the ongoing treatment of leachate from a closed landfill site within a high amenity biodiverse landscape, delivering a low-cost treatment system which meets stringent water quality standards.

### CATERPILLAR UNDERGROUND MINING R1700 LHD

Caterpillar Underground Mining Pty Ltd



This project was to design, develop, test, validate and bring to market the next generation R1700 Load Haul Dump (LHD) for Underground Hard Rock Mining. This machine will be the engineering and product architecture foundation of a series of new product releases for Caterpillar's Hard Rock

Mining product group based in South Burnie, Tasmania. This complete redesign has resulted in a machine that will enable Caterpillar customers throughout the world to operate more safely and more profitably through a range of significant core-product improvements and new autonomous mining solutions.



## CONSORT BRUNY ISLAND BATTERY TRIAL

**TasNetworks**

**The Australian National University**

**University of Tasmania**

**Reposit Power**

**The University of Sydney**



The CONSORT Project, named from “CONSUMER energy systems providing cost-effective grid support”, is trialling a distributed energy future on Bruny Island in Tasmania’s south east. In this future, customers and their batteries are coordinated to relieve an overloaded cable

that supplies the island. The CONSORT project is a collaboration across the entire value chain including networks, energy services companies, and customers themselves. It also includes the researchers who can provide the innovative leadership required to navigate this transition.

## KIDSTON PUMPED STORAGE HYDRO PROJECT

**Entura**



Specialist power and water consulting firm Entura is supporting Australia’s clean energy transition through designing efficient, cost-effective large-scale energy storage to ensure reliable supply as Australia embraces more variable renewable energy generation.

Entura’s design and optimisation of Genex Power’s Kidston Pumped Storage Hydro Project in North Queensland ensured that all identified risks were appropriately mitigated or addressed to deliver a technically and commercially feasible project. Entura’s comprehensive studies and investigations provided confidence in the configuration and design of this significant project, the first pumped hydro energy storage to be built in Australia in decades.

## KIMBERLEY RAIL BRIDGE EMERGENCY RECONSTRUCTION

pitt&sherry

VEC Civil Engineering



Kimberley Rail Bridge spans the Mersey River in Tasmania, as a critical part of TasRail's rail network. Built in 1884, the heritage bridge was severely damaged during one of Tasmania's worst floods in June 2016.

This project included the design and construction of the new Kimberley Rail

Bridge northern abutment, the new northernmost span, and the reconstruction of a new 200m long and 5m high rail embankment which, allowed a return to normal freight services, 36 days after the flood event.

The timeframe of 36 days for the design and construction of a new bridge abutment and 15m long bridge span, without any pre-planning or notice, we believe is a great collaborative effort between pitt&sherry and VEC. The normal design and construction timeframe for this extent of works would be 4-6 months.

The open and clear collaboration between the designers, contractor and asset owner was key in ensuring that around-the-clock restoration work was expeditiously delivered, despite the challenging weather conditions that persisted during the works.

## ROYAL HOBART HOSPITAL DEMOLITION

Hazell Bros Group Pty Ltd

Aldanmark Pty Ltd



Demolition of the existing Block B at the Royal Hobart Hospital (RHH) involved substantial technical, physical and logistical challenges that had to be overcome for successful delivery.

The demolition was part of the Royal Hobart Hospital Redevelopment Project (RHHRP) and

was required to allow replacement with a new 10 storey building. The demolition work was completed within a live hospital environment. Block B was structurally connected to three other buildings on the site requiring the team to investigate and physically disconnect the structure from the remaining parts whilst minimising disturbance and disruption to the daily operation of the RHH.



## TASNETWORKS BACKBONE RADIO UPGRADE

TasNetworks

Fujitsu Australia



TasNetworks is a Tasmanian Government State owned company that is responsible for electricity transmission and distribution throughout Tasmania, who also operate and maintain a Telecommunication network, including a radio backbone network that spans the State.

This radio network was upgraded as part of a network renewal program. The project was completed successfully and implemented an innovative cut-over methodology. This innovative idea and approach significantly reduced implementation risk, complexity and cost. TasNetworks worked in a collaborative arrangement with Fujitsu Australia, the prime contractor, to realise the idea and deliver a value for money outcome for owners and customers.

## VESSEL LAUNCH & RETRIEVAL SYSTEM

Aldanmark Pty Ltd

Crisp Bros & Haywards



After a twelve month period of research, prototyping and full size testing, an innovative solution was developed and constructed.

The key to making the adopted system viable was the decision to utilise steel bogies with composite stainless steel and polymer rollers. This

had two main benefits. Firstly, the polymer rollers allowed the heavy load from the vessel to be adequately spread over the existing thin concrete floors eliminating the need to replace the existing floor slabs; which would have been cost prohibitive. And secondly, the polymer rollers eliminated the need for traditional secondary steel rail systems which limit the ability to place vessels and are a hazard to workers.

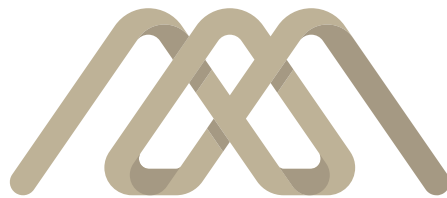
## YAP HYBRID RENEWABLE ENERGY SYSTEM

### Entura



Entura is enabling the energy transformation of the North Pacific island of Yap. Entura designed and implemented an advanced hybrid renewable energy system to reduce Yap's dependence on expensive and emissions-intensive diesel generation, contribute to its clean energy goals, and provide

reliable and sustainable power to support social and economic development. The integrated power system enables up to 70% renewable energy when conditions allow, delivering substantial savings of costs and emissions, and provides the foundation for even greater future renewable contribution. Entura's innovative hybrid renewable systems are at the forefront of world's best practice for effective integration of emerging technologies.



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WE ARE THE GLOBAL HOME FOR  
ENGINEERING PROFESSIONALS  
RENOWNED AS LEADERS IN  
SHAPING A SUSTAINABLE WORLD.



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