

○ IS BROADBAND NOW ESSENTIAL TO SUSTAIN THE ENVIRONMENT?

On 29 January, more than 90 doughty individuals braved the 43°C Melbourne heat to attend the Awards Ceremony for the award of the 2008 Eckermann-TJA Prize, sponsored by Alcatel-Lucent as the *2008 Alcatel-Lucent Broadband Challenge for the Sustainable Environment*.

In this second year of our now annual competition, nine papers were received by the Judging Panel from authors based in four countries: Australia, Ireland, the UK and the USA. The best eight papers are published in this issue of TJA. It is truly impressive to see the range of application areas covered by these papers where broadband can help save the environment:

- Improving the water efficiency in irrigation from the current level, typically less than 50%, by up to 74%;
- Reducing the energy consumption in mobile telecommunications networks by up to 70% in urban areas;
- The use of a Smart Grid for national electricity distribution, to reduce Australia's total greenhouse gas emissions by up to 9%;
- Reducing greenhouse emissions by the use of grid-charged electrically powered passenger vehicles;
- The urban application of personal rapid transport systems;
- Reduction of the carbon footprint of the Internet;
- Applying broadband to the creation of a more greenhouse efficient national electricity market.
- 'Carbon-centric computing': the application of ICT itself, including broadband, to more carbon-efficient ICT infrastructure.

The Judging Panel decided that three of the entries were of sufficient merit to deserve to share the \$10,000 2008 Eckermann-TJA Prize. They have been made available free within this issue of TJA. Six of the eight winning authors are shown in the photo below; all authors are featured in the 'Our Authors' section of this issue.

TJA is also pleased to publish a timely paper by Canadian academic Catherine Middleton. Her paper analyses the claims for broadband arising in our 2007 Broadband Challenge papers (free in TJA's December 2007 issue) versus Australia's ability to implement those solutions at the household level, based on the latest available (2008) statistics on broadband penetration and usage. Her conclusion, that 'there is still a large gap between the potential benefits that can be achieved by encouraging household broadband usage, and the actual benefits that are accruing', because of inadequate national uptake of broadband, are – as she points out – equally relevant to many other countries, 'especially Canada, the UK and the US'.

When we look beyond household usage to industrial and agricultural exploitation of broadband infrastructure, the potential benefits to the environment are even greater. The joint winning paper by Saleem, Wicks and Dassanayake in this issue demonstrates truly impressive savings in water usage when broadband radio networks' capabilities for high-speed data transfer are applied to managing irrigated horticulture.



Figure 1 The 2008 Eckermann-TJA Prize-winning authors:
 Khusro Saleem (NICTA), Kithsiri Dassanayake (U.Melbourne), Byron Wicks (NICTA), Bethany Thompson (ANU), Mike Dennis (ANU) and Holger Claussen (A-L Bell Labs UK).
 Absent: Lester Ho (A-L Bell Labs UK) and Florian Pivik (A-L Bell Labs Ireland).
 Source: Alcatel-Lucent

A broad pattern emerges from many of the ‘broadband challenge’ papers in TJA. The underlying and largely unspoken assumption is a pragmatic recognition that we citizens in the developed world are mostly reluctant to change our living habits to any great degree. We don’t want to change our eating habits, we want to keep using cheap fossil fuels and travel a lot by private vehicles; we even tolerate the irrigation of water-wasting crops like cotton and rice in parched lands like outback Australia.

While that complacency lasts, and is reflected in government policies, our only hope to minimise damage to the environment is through far better management of our grossest water-wasting and greenhouse gas-generating activities. The TJA papers collectively demonstrate that while governments take the ‘better management’ approach, the extensive availability of affordable broadband is in fact essential.

COUNTER CHALLENGES BETWEEN INDUSTRY AND GOVERNMENT

The youthful new Managing Director of Alcatel-Lucent Australia, Andrew Butterworth, extended a challenge to government at the Awards Ceremony. Observing that all Sydney motorists will soon be required to carry an e-tag to cross the Sydney Harbour Bridge, he noted the opportunity that exists to make these cards network enabled, and thereby improve Sydney’s traffic flows.

“By enabling all vehicles to be network connected via their e-tags, we could see massive transport efficiency improvements through real-time route management, car park assistance, road work updates and more,” he suggested.

“With some smart thinking and smart technology, the resulting optimization of Sydney’s traffic network could massively reduce carbon emissions and prove once again that the telecoms industry can absolutely underpin and drive other industries’ sustainability needs,” he pointed out.

The Hon. Bill Shorten MP, who presented the awards on behalf of Senator Stephen Conroy, responded with a creative counter challenge. Noting that his prime governmental role is that of Parliamentary Secretary for Disabilities and Children’s Services, he challenged the industry to put up \$10,000 – which he offered to match – for a new prize for the best ideas in applying broadband to help people with disabilities. As this Journal goes to press, it seems highly likely that an industry champion is prepared to step forward and take up Bill’s challenge. TJA will be very happy to publish the best papers received from around the world on this topic in our November 2009 issue, which in any case will have the major theme of ‘end user needs’.

In the meantime, Robin Eckermann and I are confident that TJA can find a suitable sponsor for the 2009 Broadband Challenge for the Sustainable Environment (the third competition for the Eckermann-TJA Prize), and publish the best papers in our February 2010 edition.

Our next issue, in July 2009, will tackle the important theme of Network Neutrality – which encompasses the contentious issue of Internet filtering as well as that of equitable Quality of Service amongst Internet content providers – with several distinguished experts contributing. Our deadline for papers is 15 April.

Peter Gerrand, Managing Editor