

R&D REVIEW

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*Linking Australian Science,
Technology and Business*

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Innovation makeover

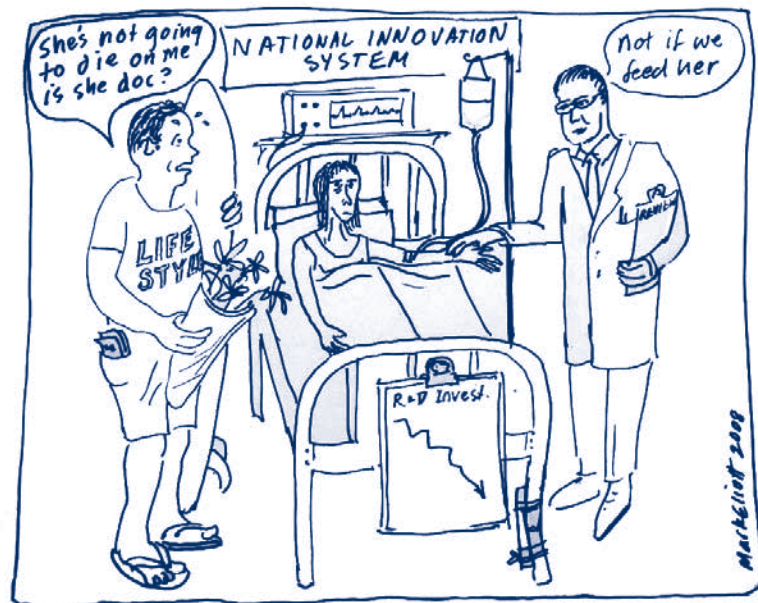
Over 700 submissions and a series of roundtable seminars on specific issues contributed to the Review of the National Innovation System *Venturous Australia*, which found the architecture of Australia's existing National Innovation System, now a generation old, "requires renewal, refurbishment, recasting and where necessary re-imagining." The review panel led by **Dr Terry Cutler** states that levels of R&D and other forms of innovation have risen sharply since the 1980s but have stalled over the last decade with some indicators suggesting absolute decline. As a share of Gross Domestic Product (GDP), **Australian Government** support for science and innovation has fallen by nearly a quarter. Also the number of researchers per thousand employees has declined substantially in the last decade, and US patents granted per 1,000 population have plunged from 0.06 to 0.01 (1999–2003). This is against a backdrop of other small countries, like Finland, Singapore and Korea, renewing their innovation commitment and redoubling their efforts.

The review contains 72 recommendations addressing a broad range of elements of the Innovation System including:

Entrepreneurial firms and innovative workplaces – The review recommends enhancing the opportunities environment for business enterprises to innovate. This will require a significant recasting of Australia's innovation policy giving priority to strengthening innovation at the point where business enterprises and workplaces engage with their markets and customers.

Human capital and social networks – Public expenditure on education has declined to 4.7% of GDP by 2003, below the OECD average of 5%. The review says it is "imperative that Australia's educational institutions do receive adequate funding and it is likely this will require a substantial increase in funding as a share of GDP."

Information flows, market design and freedoms to innovate – The review identifies, particularly in new areas of patenting such as software and business methods, "strong evidence that existing intellectual property arrangements are hampering innovation." It suggests that central design aspects of all intellectual property be managed as an aspect of economic policy. It further argues that current threshold of inventiveness for existing patents are too low. Inventive steps required to qualify for patents should



be considerable and patents need to be well defined to minimise litigation and maximise the scope for subsequent innovators.

Research capability and platforms – The review calls for an urgent restoration of public funding levels for research in universities and government research agencies. Costs of research at universities should be fully funded, with increased funding for universities and government research agencies, such as the **Commonwealth Scientific and Industrial Research Organisation**, the **Australian Institute of Marine Science**, and the **Australian Nuclear Science and Technology Organisation**, to match by 2020 the top quartile of OECD countries in public expenditure on research and development. A significant portion of research funding should be aligned with national priorities as they emerge.

Transforming and rationalising tax incentives – The review proposes the transformation and rationalisation of the suite of available tax concessions. The International and Premium schemes should be terminated and the basic concession increased and recast as a 40% tax credit.

Market facing innovation programs – According to the review,

government has an important and strategic role to play in facilitating innovation “where it is confident, firstly, that there are structural impediments to markets doing the work and, secondly, that government involvement will generate more benefits in addressing these problems than it will generate in collateral costs.” The review calls for a new program to assist innovative firms in the high-risk early stages of proof-of-concept and development and an expansion of the Enterprise Connect program. To facilitate linkages between small and medium sized enterprises and the research community it proposes the introduction of an innovation voucher system. It further recommends the continuation of the Commercialising Emerging Technologies (COMET) program in order to strengthen the growth of high technology and innovative service-based firms.

Innovation within government – The review points out that governments, by contrast to the market, typically employ hierarchical ‘top-down’ approaches less effective in harnessing the insights of officials at the lower end of the command chain, and consumers of government services. It recommends a suite of low cost measures to inculcate a ‘bottom up’ culture of innovation including a body operating as an advocate for innovative forces within the public sector and a source of funds and skills for the development of innovative approaches.

National Innovation Priorities – Complementing already existing innovation priority areas, the review identified new innovation areas, which are 1) under the direct control of the public sector (agricultural and food security, climate change mitigation and adaptation, population health, solutions in tropical environments, and applications to utilise broadband infrastructure), and 2) areas where public innovation could spillover into complementary private sector innovative efforts (resource industries, space and astronomy, finance and risk management, and marine industries).

Institutional alignment – To overcome identified shortcomings in the institutional framework underpinning the innovation system the review recommends replacing the current **Prime Minister’s Science, Engineering and Innovation Council** (PMSEIC) with a new **National Innovation Council** (NIC), which is to provide strategic leadership and will oversee the broad innovation agenda recommended by the review.

The review also proposes a new **National Centre for Innovation Research** to advance knowledge of the innovation system.

► **More information:** www.innovation.gov.au/innovationreview

Happy fellows

A new Australian Laureate Fellowships scheme costing \$239 million over five years will replace the Federation Fellowships program and is to attract outstanding researchers, from Australia and internationally, to work in Australian universities.

Run by the **Australian Research Council** (ARC) alongside Labor’s new Future Fellowships scheme for mid-career researchers, the program will award up to 15 fellowships every year, each worth around \$3 million over five years. According to the Minister for Innovation, Industry, Science and Research, **Senator Kim Carr**, the scheme will allow Laureate Fellows to work with, and mentor, up to four postdoctoral and postgraduate researchers, with a focus on team work and building career paths for the best, emerging researchers.

Welcoming the initiative, **Professor Ken Baldwin**, president of the **Federation of Australian Scientific and Technological Societies**, says the Federation Fellowships had the tendency to be unconnected to other funding schemes making it difficult for universities to propose them in new areas. With the Laureate Fellowships the government has recognised that “fellowship holders need sufficient resources to hit the ground running,” he says.

The scheme is expected to open from mid-October 2008.

► **More information:** **DIISR** - **Catriona Jackson**, 0417 142 238; **FASTS** - **Bradley Smith**, (0408) 511 261

Small power

Nanotechnologies are a growing group of enabling technologies, dealing with engineering at the molecular level, which can make a substantial impact on all areas of energy, including conversion, storage and distribution.

This is the key finding of a project report *Energy and Nanotechnologies: Strategy for Australia’s Future* conducted by the **Australian Academy of Technological Sciences and Engineering** (ATSE).

Future Australian energy strategy needs to be technology-based around increased energy conservation and clean coal technology combined with capture and storage of carbon dioxide, as well as substantial contributions from non-fossil and renewable energy sources.

To realise the great potential of nanotechnologies, says the report, significant effort in research, development and demonstration is needed over a sustained period.

The study identified key areas for application of nanotechnologies to Australian energy systems in short-term, medium-term and long-term time frames:

- Short term (less than 5 years) – energy conservation; environmental management; catalysts for combustion; photovoltaic cells.
- Medium term (5-15 years) – catalysts for conversion of biomass, gas and coal; fuel cells; advanced photovoltaics using engineered nanomaterials.
- Long term (greater than 15 years) – hydrogen production; hydrogen storage and use.

According to the report, national coordination is essential to make best use of Australia’s limited research resources and to build up the skills base needed to sustain a new industry sector.

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31ST ATSE NATIONAL SYMPOSIUM RACV Club, Melbourne, 17-18 November 2008 *Alternative Transport Fuels for Australia*



Electric vehicles like the Nissan Pivo II concept car may provide one of the solutions to the transport fuel dilemma

The Academy's 2008 National Symposium will address one of the most important topics our nation faces.

Recent world events have brought the issue of fuel supply into extremely sharp focus and in no fuel sector does Australia have fewer obvious alternatives than in transport fuels.

Leading Australian and overseas speakers will address the key issues in sessions covering biofuels, natural gas (both CNG and LPG) and non-hydrocarbon sources (electricity – including hybrids and hydrogen).

Each of these alternatives will be examined from different aspects – the policy challenges, the environmental and ethical challenges, the economic

challenges and risks (including security of supply) and the engineering, infrastructure and research implementation challenges.

This will be a key conference on this vital topic when the most current information will be available and notable speakers will make cutting-edge presentations and engage with the delegates.

It's an event you can't afford to miss if you want to be abreast of alternative transport fuels issues and options.

For further program or registration details, contact Cathryn Little (03) 9340 1209 or go to www.atse.org.au

Major investment, both public and private, is needed for a national research, development and demonstration program to enable commercial exploitation of promising technologies.

The report outlines eight recommendations including:

- **National Coordination** – There needs to be national coordination of programs by the **Australian and State Governments** to ensure optimum use of limited research and capital resources.
- **Skilled Workforce, Codified Knowledge** – Universities should focus on the development of a skilled workforce and the production of codified nanotechnology knowledge which could be applied in industry.
- **Integration** – Governments and industry associations in Australia should encourage the private sector to play the key role in integrating nanotechnologies into existing energy systems and activities.
- **National Nanotechnology Strategy** – The Australian Government should embrace a national Strategy for Nanotechnologies in Energy.
- **International Participation** – Australia should actively seek to participate in international programs where nanotechnologies are being applied to energy systems.
- **Codes and Standards** – Australia should continue to play an active role in the formulation of international codes and standards relating to nanotechnologies to ensure that Australia is not disadvantaged in exploiting locally developed technologies and nanomaterials in its energy systems.

► **More information:** Bill Mackey, (03) 9340 1206, 0418 923 370, billm@atse.org.au. Report download: www.atse.org.au/uploads/NanoRep.pdf

Cooperative effort

The **Australian Government** has announced a new \$100 million **Global Institute** which, in a cooperative effort with other countries, is to speed up the development of carbon capture and storage (CCS) technology.

Offering to host the institute in Australia the government pledged a continued contribution of annually \$100 million towards its operation. The institute will aim to accelerate carbon projects through facilitating demonstration projects and identifying and supporting necessary research – including regulatory settings and regulatory frameworks.

Australia has held informal consultations with industry and foreign governments over a possible model for the institute anticipating

commercial deployment across the world by the end of the next decade.

The institute will complement a number of already established CCS initiatives by the government such as the **National Low Emissions Coal Initiative** (NLECI), a \$500 million program to accelerate the development and deployment of technologies, and the **National Low Emissions Coal Council** and a **Carbon Storage Taskforce**. These bodies will play a leading role in helping to deliver this new global initiative.

Legislation to establish a regulatory framework for CO₂ storage under the seabed in Commonwealth waters is currently before Parliament. This legislation will allow Australia to offer the first carbon storage blocks for commercial development in early 2009.

► **More information:** www.pm.gov.au

Water intelligence

A five-year, \$50 million research partnership between the **Bureau of Meteorology** and **CSIRO** will be the largest water information research project in the southern hemisphere.

The **Water Information Research and Development Alliance** (WIRADA) aims to provide a state-of-the-art, national database on Australia's water resources.

Under the **Australian Government's** Water for the Future program, the Bureau has the role of reporting on the availability, condition and use of water resources across Australia.

Through the new WIRADA initiative, CSIRO will perform research specifically for the Bureau that will be integrated into the way its water monitoring, analysis and prediction systems are developed.

"Water for the Future has four key priorities: tackling climate change, using water wisely, supporting healthy rivers, and securing water supplies," says the Minister for Climate Change and Water, **Senator Penny Wong**.

WIRADA will assist the Bureau to deliver on new water information responsibilities, including:

- storing and managing all of Australia's water data;
- reporting on the status of Australia's water resources, patterns of water use and forecast future water availability;
- maintaining a comprehensive set of water accounts for the nation;
- setting national standards for water use metering and hydrologic measurements;
- influencing and supporting state-based investments in water

- monitoring and water use metering programmes; and
 - procuring special data sets to enhance our understanding of Australia's water resources.
- **More information:** www.environment.gov.au/minister/wong/2008/index.html

Playing global

Round 13 of the International Science Linkages Competitive Grants scheme will provide \$5.37 million for 21 new international scientific research projects and major scientific conferences, according to the Minister for Innovation, Industry, Science and Research, **Senator Kim Carr**. The funded research projects will establish and build on collaborations with international partners from the United States of America, the United Kingdom, Brazil, Japan, Singapore, Germany and the European Union.

The supported projects cover high-priority areas such as research into clean energy technologies; investigation of climate change issues; and technologies to promote healthy ageing. They include:

- research into the production of transportation bio-fuel (**Monash University** and American researchers);
- development of novel nanoparticles for magnetic resonance imaging targeting specific markers for cardiovascular disease and inflammation (**Baker IDI Heart and Diabetes Institute** and researchers from Germany); and
- standardising the approach to remotely sensing greenhouse gases, atmospheric pollution and ozone depletion in the northern and southern hemispheres (**University of Wollongong** and project partners from the EU, US and NZ).

► **More information:** [Patrick Pantano, 0417 181 936](mailto:Patrick.Pantano@csiro.au)

Partners in defence

The **Defence Science and Technology Organisation (DSTO)** has renewed an important Industry Alliance agreement with **IBM** for a further three years.

The Minister for Defence Science and Personnel, **Warren Snowdon**, says the Industry Alliance enables DSTO to leverage IBM's US\$6 billion annual investment fund for research and development through the Australian IBM Research Laboratory program. "We can also access IBM's impressive network of technology partnerships involving defence organisations in Europe and North America," Mr Snowdon says.

The agreement will continue the development of practical solutions flowing from current DSTO technology research investments such as collaborative work between DSTO and IBM on new applications for DSTO's Shapes Vector. This prototype system for detecting intrusions into computer networks uses three dimensional visualisation techniques to patrol and report on wide-area network anomalies.

Other areas covered by the agreement will help Defence meet its capability challenges such as achieving IT system and coalition interoperability and enhancing its vital command and control systems.

► **More information:** [Kate Sieper, 02 6277 7620](mailto:Kate.Sieper@csiro.au)

Guided conduct

The **Go8** has released a draft consultation paper designed to assist its member institutions with implementation of Part B of the *Australian Code for the Responsible Conduct of Research* (the Code).

Part B of the Code sets out a framework to guide Australian research

organisations in receipt of Commonwealth funds in their handling of allegations of research misconduct.

The Go8 paper has been prepared to inform discussions with the **National Health and Medical Research Council (NHMRC)**, **Australian Research Council (ARC)** and other interested parties about practical implementation of the Code.

► **More information:** [Tim Payne, 02 6239 5488](mailto:Tim.Payne@csiro.au)

Path to the stars

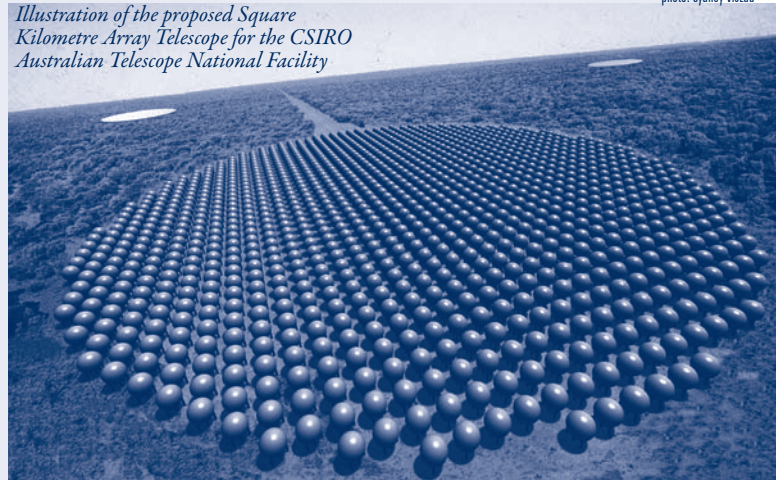
Senator Kim Carr, Minister for Innovation, Industry, Science and Research, has launched a register of the opportunities available to industry to participate in building a \$100 million radio telescope in Western Australia. The Pathfinder telescope will support Australia's bid for the \$2 billion-plus **Square Kilometre Array (SKA) telescope**, one of the most significant international science projects ever.

The **ASKAP Industry Opportunities Register** outlines the Pathfinder telescope technology and infrastructure requirements to 2012 in areas where industry partnerships are needed. The opportunities for industry will be worth around \$70 million.

CSIRO will build the Pathfinder telescope and develop technologies that will inform planning and development of the SKA with \$100 million in **Australian Government** funding.

Illustration of the proposed Square Kilometre Array Telescope for the CSIRO Australian Telescope National Facility

photo: Sydney VisLab



The site is being provided by the **Government of Western Australia**. Construction of the Pathfinder begins next year, and a decision on who will host the SKA is expected by 2012.

► **More information:** www.ska.gov.au; (02) 9372 4263; email: ASKAP-contact@csiro.au

Showing the way

A *Strategic Roadmap for Australian Research Infrastructure* outlining Australia's research infrastructure needs over the next 5-10 years has been developed by the **Department of Innovation, Industry, Science and Research** and the **National Collaborative Research Infrastructure Strategy committee**, in consultation with the research community and State and Territory governments.

According to the Minister for Innovation, Industry, Science and Research, **Senator Carr**, the roadmap will form an important input to the government's White Paper response to the *Review of the National Innovation System*.

Key conclusions in the roadmap include:

- collaborative infrastructure funding is needed to support research into an environmentally sustainable Australia, biological discovery and health, frontier science and technology and safeguarding Australia;
- increased emphasis should be placed on eResearch infrastructure, as information and communication technology underpins all areas of research and is an important enabler of collaboration between researchers within Australia and overseas;
- the infrastructure needs of humanities, arts and social sciences research should be addressed in view of the widespread contribution by these disciplines to national outcomes; and
- a structured process is needed to identify and assess major 'landmark' infrastructure investments, such as further development of the Square Kilometre Array.

► **More information:** [Catriona Jackson, 0417 142 238](#)

Good COMET

An evaluation by independent consultancy firm **ACIL Tasman**, which was commissioned by the **Australian Government**, has found COMET is a competitive, merit based program that supports early-growth stage and spin-off companies to successfully commercialise their innovations.

Senator Kim Carr, Minister for Innovation, Industry, Science and Research, says: "In particular, the practice of providing strategic and tailored support to early stage companies significantly enhances their chances of successfully converting new and innovative ideas into successful commercial outcomes."

Key findings of the evaluation report include:

- the objectives of the program remain relevant and appropriate;
- the outsourced delivery model is working well;
- the program is effective in improving the ability of the majority of its customers to commercialise their innovation; and
- there is evidence to suggest that the program has improved the COMET customers' potential to be sustainable and high growth businesses.

The evaluation made nine recommendations for changes to the program if extended by the government.

Since being established in 1999, the COMET program has assisted approximately 1,500 new companies and raised over \$510 million in private capital to fund developing companies. The *Review of the National Innovation System* also recommended that the COMET program be expanded and continued for another five years, which will be considered by the Government as part of its Innovation White Paper.

► **More information:** [Patrick Pantano, 0417 181 936](#)

Innovative workplace

The released *Review of the Australian Textile, Clothing and Footwear (TCF) Industries* is providing clear direction on how they can compete and succeed in today's increasingly competitive global environment, according to **Senator Kim Carr**, Minister for Innovation, Industry, Science and Research.

The review conducted by **Professor Roy Green**, was supported by an industry reference group, and received over 80 submissions. It contains 15 broad ranging recommendations to encourage reform and rejuvenation of Australia's TCF industries.

A key recommendation is that industry assistance be focussed on building innovative capacity at the level of the enterprise and workplace

rather than traditional structural adjustment.

The report supports the continuation of the tariff reduction schedule for the industry to 2015 and recommends current programs be replaced with a new \$200 million TCF Innovation Capability Program from 2010.

"TCF industries provide jobs for over 48,000 Australian workers, generate exports worth \$1.6 billion, and contribute \$2.8 billion to our economy each year. Our task is to work with the industry to promote growth and overcome the challenges of a highly competitive environment," says Senator Carr.

► **More information:** www.innovation.gov.au/tcfreview

Chiefly appointment

Professor Penny Sackett is Australia's new, full-time, Chief Scientist.

Professor Sackett was director of the **ANU Research School of Astronomy and Astrophysics** and **Mount Stromlo and Siding Spring Observatories** (2002 – 2007) and remains a professor in the school. She is a member of the **Australian and American Astronomical Societies**, the **International Astronomical Union** and the **Association for Women in Science**.

An elected international fellow of the **Royal Astronomical Society**, she is also involved in governance of the **Gemini Observatory** and the **Hubble Space Telescope Science Institute**. In addition, she is currently director of the **Giant Magellan Telescope**, a project to build the world's most powerful optical telescope.

► **More information:** [Catriona Jackson \(DIISR\), 0417 142 238; Susan Charles \(Professor Sackett\), 0434 077 594](#)



Australian Academy of Technological Sciences and Engineering Limited

MISSIONS AND WORKSHOPS

The Australian Academy of Technological Sciences and Engineering is pleased to offer Australian researchers, from both the public and private sector, an opportunity to submit expressions of interest for international Missions, Workshops and Delegations during the financial year 2009-2010.

Closing date of EOI Proposal – Monday 10 November 2008 by 5.00 pm EST.

EOI forms and selection criteria are detailed on the ATSE website: www.atse.org.au

ATSE will not fund the following activities:

- Conference sponsorship
- Attendance or participation in conferences
- Collaborative research projects
- Postdoctoral or Fellowship exchanges

This project is proudly supported by the *International Science Linkages – Science Academies Programme*, established under the Australian Government's Innovation Statement, *Backing Australia's Ability*.

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Emissions of carbon dioxide from human activities have been growing about four times faster since 2000 than during the previous decade.

Emissions rise fast

The latest figures on the global carbon budget released in Washington and Paris indicate a four-fold increase in growth rate of human-generated carbon dioxide emissions since 2000.

"This is a concerning trend in light of global efforts to curb emissions," says **Global Carbon Project (GCP)** executive-director, **Dr Pep Canadell**, a carbon specialist based at **CSIRO** in Canberra.

Releasing the 2007 data, Dr Canadell says emissions from the combustion of fossil fuel and land use change almost reached the mark of 10 billion tonnes of carbon in 2007.

He says based on research findings published last year in peer-reviewed journals such as *Proceedings of the National Academy of Sciences*, *Nature* and *Science*, atmospheric carbon dioxide growth has been outstripping the growth of natural carbon dioxide sinks such as forests and oceans.

Dr Michael Raupach, GCP co-chair and a CSIRO scientist, says Australia's position remains unique as a developed country with rapidly growing emissions. "Since 2000, Australian fossil-fuel emissions have grown by 2% per year. For Australia to achieve a 2020 fossil-fuel emissions target 10% lower than 2000 levels, the target referred to by **Professor Garnaut**, we would require a reduction in emissions from where they are now by 1.5% per year. Every year of continuing growth makes the future reduction requirement even steeper."

► **More information:** www.csiro.au/news/MediaCentre.html

Better kept frozen

The amount of frozen organic carbon locked away in the world's permafrost regions – a major potential source of atmospheric carbon dioxide (CO₂) and methane (CH₄) – may be double of what has been previously estimated. An international team of scientists says while some of the CO₂ produced as a result of decomposition of previously frozen vegetation would be absorbed by increased, global warming-induced plant growth, it is likely the net effect would be a significant net increase in atmospheric CO₂.

The research published in the journal *Bioscience*, which involved scientists from Australia, Russia, the US, the UK, Canada and Europe, indicates that accounting for carbon stored deep in the permafrost more than doubles – to more than 1500 billion tonnes – previous estimates of the world's high-latitude carbon inventory.

"This is equivalent to twice the current amount of CO₂ in the world's atmosphere," says co-author, CSIRO's **Dr Pep Canadell**, from the **Centre for Australian Weather and Climate Research** – a partnership between CSIRO the **Australian Bureau of Meteorology**. "With temperatures in the higher latitudes estimated to rise by as much as eight degrees by the end of this century, the world could experience a major melt of large tracts of permafrost in Canada, Russia, Alaska, Norway, Sweden, Finland and Greenland." He says that even the release of a small fraction of this vast frozen reservoir of carbon would significantly accelerate climate change.

► **More information:** www.csiro.au/news/MediaCentre.html

Ancient reef

The remnants of a once giant underwater reef were found in the Northern Flinders Ranges – with an escarpment that is at its highest point 1100



photo: Greg Heath, CSIRO

metres, ten times higher than the Great Barrier Reef.

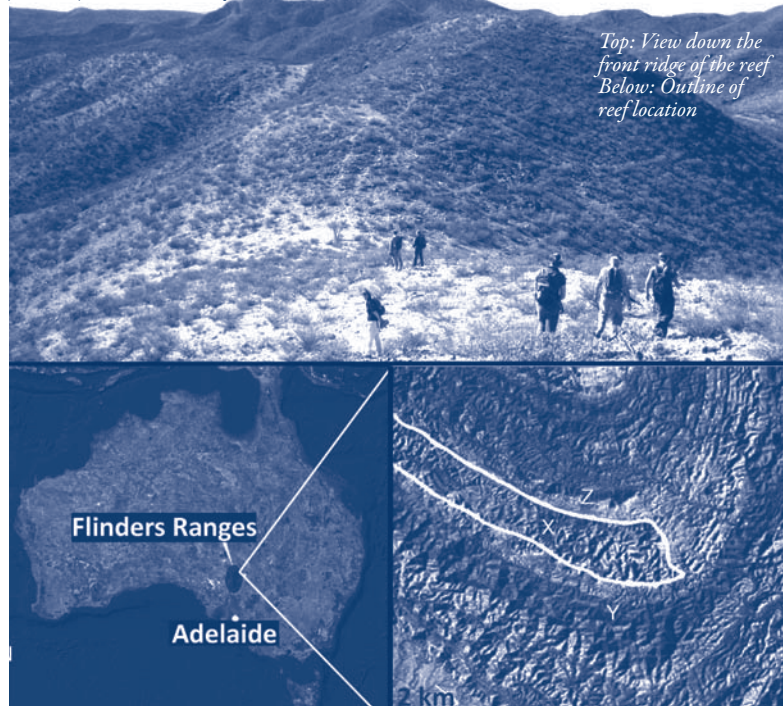
The 650 million years old reef, the only known reef complex of this age anywhere in the world, was discovered by three scientists of the **University of Melbourne**, **Mr Jonathan Giddings**, **Associate Professor Malcolm Wallace** and **Ms Estee Woon**.

The Oodnaminta Reef existed for 5-10 million years in a period of tropical climate in between two major ice age events approximately 750-550 million years ago. The period coincided with a sudden and widespread appearance of very early primitive life forms. New fossils and organisms were found in the reef which may provide significant insight into the evolution of early multi-cellular life and prove that life took more complex forms much earlier in history than previously thought, Mr Giddings says. According to Mr Giddings, the discovery is already attracting significant interest from leading scientists around the world.

650 million years ago the Flinders Ranges through to the current eastern seaboard were still buried under the ocean. Over million of years, tectonic forces have then turned the reef 90 degrees skywards from its once horizontal position, exposing the whole 1 kilometre depth of the reef. Associate Professor Wallace says scientists can now easily obtain information on important geological history which otherwise would need to be uncovered by expensive and invasive drilling techniques.

The reef is not made by coral and provides insights into climate change 650 million years ago, says Professor Wallace. "The chemistry of the reef

photo: University of Melbourne, Jonathan Giddings



*Top: View down the front ridge of the reef
Below: Outline of reef location*

and other sediments forming in the ocean at the same time show the ocean was poorly mixed, and this may have had an effect on Earth's climate at that time by allowing carbon to be trapped in the ocean's depths."

► **More information:** **Rebecca Scott**, 03 8344 0181, rebeccas@unimelb.edu.au

Unravelling food

A unique consortium of Australian research organisations and industry partners will determine the molecular structure of the protein components in some of our most common foods. The research will help food manufacturers understand the links between the nanostructure of

protein-containing foods and their associated physical and biochemical properties. This will enable them to predict and control the behaviour of raw materials and ingredients during food processing.

The partnership, also dubbed as the “Protein Syndicate”, brings together the unique food and materials science capabilities and expertise of the **Australian Nuclear Science and Technology Organisation (ANSTO)**, the **CSIRO’s Food Futures National Research Flagship**, and **The University of Queensland’s Centre for Nutrition and Food Sciences**.

Research projects that will allow the design of consumer-friendly foods with improved taste, texture and nutritional qualities have already commenced. **Dr Ingrid Appelqvist**, research team leader with CSIRO’s Food Futures National Research Flagship, says the research will determine the behaviour of a range of food proteins and predict their response to formulation variables likely to be found in food manufacturing processes and products. “Our ultimate goal is to design highly nutritional new ingredients that can be dried and rehydrated without reducing their quality and functionality,” she says.

An unprecedented number of leading food companies have already joined up as commercial partners.

Current members include: **Fonterra Co-operative Group Limited**; **George Weston Foods**; **Meat & Livestock Australia**; **Manildra Group**; and **Dairy Innovation Australia**.

The consortium still has room for additional partners to join this two-year research project.

► **More information:** Sarah Haydon, (CSIRO), 07 3214 2082, sarah.haydon@csiro.au

Diseased travellers

A **Deakin University** research project is looking into how birds might bring avian influenza and other diseases into Australia.

Environmental science expert **Dr Roban Clarke** has been involved in a major study of migratory birds moving from South-East Asia and Papua New Guinea to northern Australia, with the aim of tracking how avian disease spreads. Looking at rates and spread of avian malaria amongst birds in the region, his research team has gathered 900 samples from different bird species in the Torres Strait, which will now be subject to molecular screening. Dr Clarke says blood-smears done on location show a high prevalence of malaria infection – about 30% – making it an ideal study in disease transmission. Australian islands are situated just 3kms from the Papua New Guinea coastline, an obvious pathway of any disease like bird flu moving into the country, he says. “Clearly this border is the major bio-security threat for Australia...”

The Torres Strait is a major migration pathway for bush birds in Australia – smaller birds which live in foliage. “We are talking hundreds and thousands of birds moving back and forward across the strait each year,” says Dr Clarke. “If we are to get any major disease incursions into Australia, it is likely to come through this pathway.”

► **More information:** www.deakin.edu.au/news/media.php

Abuse me, no worries!

Some sporting organisations struggle to get enough people to wield a whistle, but insults and profanities hurled at football umpires usually are not the problem. **Dr Pamm Kellett**, a senior lecturer in the School of Management and Marketing at **Deakin University**, has researched umpire abuse and found that rather than get upset, football umpires tend to accept

the abuse as part of their lot.

The results of interviews conducted with 22 professional or semi-professional umpires of Australian Rules football indicate it is how the umpires themselves interpret the abuse – not how we see it – that counts. And those attitudes appear to be learned.

The research indicates that interacting socially is very important to umpires. Training, match days, social gatherings and accreditation courses all provide them with the opportunity to mingle and it is that kind of social interaction that holds the key to them learning ways to deal with abuse, and therefore continuing their involvement in umpiring. These gatherings allow umpires to share experiences and they act as a positive reinforcer.

“Until now, we have known little about why umpires take up the role and what factors dictate whether or not they stay but, if we want people to be able to participate in organised sports, we need to find out,” says Dr Kellett. “We need to optimise the strategies and tactics by which we recruit, train and retain umpires.”

► **More information:** www.deakin.edu.au/news/media.php

Polluter: washing

Frequently washing and tumble drying of a t-shirt consumes three-quarters of the energy required to make and use it, says **QUT Institute of Sustainable Resources** researcher **Francisco Javier Navarro**.

Commissioned by the **Cotton Research and Development Corporation** to undertake a ‘life cycle assessment’, Mr Navarro compares the environmental impact of cotton and polyester t-shirts on their production, use and disposal stages, also known as the ‘cradle to grave’ approach. His investigation takes into account the entire life cycle of a t-shirt, and measures the environmental impact of growth and production of the materials, construction of the garments, transportation, retail, wear and disposal.

According to Mr Navarro, throughout the life of a t-shirt made and sold in Australia, almost 75% of its carbon footprint is caused by machine washing (~19%) and drying at home (~53%).

“This means our decisions on washing our clothes have a big impact on the carbon footprint of our clothing. It makes a huge difference in energy consumption to hang clothes out on a washing line to dry instead of using a tumble dryer,” he says.

One of the goals of Mr Navarro’s research is to analyse the effect of increasing the number of times t-shirts are worn before washing.

A report on the research is expected at the end of the year.

► **More information:** www.news.qut.edu.au

Knowing it preferred

Research Australia’s Public Opinion Poll 2008, conducted by Crosby|Textor, has found that two thirds of Australians would be inclined to take a test for a disease such as Alzheimer’s, even without a current treatment available. The poll, to be released later this year, found that 25% of those surveyed were ‘extremely likely’ to take such a test and 41% were ‘somewhat likely’. The finding has been reported in the first of Research Australia’s *Health research and you* fact sheets.

“Alzheimer’s disease is emerging as a serious concern for the Australian community,” says Research Australia chief executive officer **Rebecca James**. “People are concerned that our increased longevity sometimes means greater risk of suffering diseases associated with ageing,” she says. “The community wants to know more about their risk factors. Scanning

technology can give people the chance to come to terms with their illness, as well as being useful for early intervention as treatments improve.”

The *Health research and you* fact sheets outline the impact of major diseases on the community, leading-edge research being undertaken in Australia and the benefits of research for improving our lives.

► [More information: researchaustralia.org/RA/News.aspx](http://researchaustralia.org/RA/News.aspx)

Sick on the road

For the first time, both in Australia and internationally, a study has examined the mental health of heavy goods vehicle (HGV) drivers.

The report *Health Survey of the New South Wales Transport Industry* identified that certain factors, such as being employed casually or having depression, may greatly increase the chance of an accident on Australian roads.

Commissioned by **Australian Rotary Health**, the study was conducted by **Queensland University** and supported by various bodies, including the **NSW Transport Union** and the **National Transport Commission**. It may have major implications for road safety throughout Australia. It found that HGV drivers work an average of 62 hours per week, and 65% work longer, some more than 100 hours per week.

The number of hours worked each week is directly related to driver stress. In addition, drivers with symptoms of depression are twice as likely to have an accident, while those with severe symptoms of depression are nearly six times as likely to have an accident. 27% of drivers scored positive for potential hazardous alcohol use with 3% in the extreme risk categories; 8.9% of drivers use a drug at least weekly, with the use of some drugs double that found in the normal population.

According to the author of the report, **Dr Michael Hilton**, from the **Park Centre for Mental Health in Queensland**, it is important the research findings be extended into an action plan, but drivers themselves resist treatment. “Our research found that 91% of drivers with symptoms of depression were not in treatment – we also found that HGV drivers have substantial barriers to treatment for mental health problems.”

► [More information: www.aussmc.org/truckdrivers.php](http://www.aussmc.org/truckdrivers.php)

Predictable prematurity

Australian researchers and a pathology company have joined forces to develop a world-first computerised system to predict premature birth with greater accuracy. The **University of Melbourne**, the **University of Newcastle** and **Symbion Pathology** are developing a computer program to predict women at risk of a premature birth, which is responsible for 70% of newborn baby deaths and 50% of cerebral palsy cases.

According to **Professor Roger Smith** from the University of Newcastle, identifying patterns in hormone levels could be the key to determining high-risk pregnancies. The mechanisms that regulate the onset of human labour are still unknown, he says. But by determining the patterns in hormone levels “we could see when a pregnancy was going ‘off course.’”

Professor David Smith, from the Melbourne School of Engineering at the University of Melbourne, recently received an **Australian Research Council Linkage Grant** of \$390,000 to fund the project for three years.

“We are creating software and other computational methods to analyse pathology samples, determine patterns in blood hormone levels, and display the results,” he says. “The program will not only identify women at risk of giving birth early – it will also identify women not at risk, who could have their pregnancies managed by midwives in hospital or a

home birth setting.”

Researchers hope to have the computer program fully developed in three years.

► [More information: www.newcastle.edu.au/news/index.html](http://www.newcastle.edu.au/news/index.html)

A face on the train

A DVD with a series of 15 short animated stories is transporting autistic children aged two to eight years into a world where they can explore simple emotions such as happy, sad, angry and afraid, as well as more complex ones like sorry, tired, joking and unfriendly.

Produced by leading scientists and film makers, the DVD features real human faces on animated toy vehicles. “Children with autism and Asperger Syndrome love order and predictability,” says **Professor Simon Baron-Cohen**, director of the Autism Research Centre at the **University of Cambridge**. They like trains, trams and other mechanical objects that behave in simple predictable ways, he says. “Our research suggested that if we graft real faces and emotions on to toy trains, trams, cable cars and chain-ferries - things that they love - then we could encourage children to pay attention to, and identify, human emotions.”

Cheryl Dissanayake, director of the **Olga Tennison Autism Research Centre** at **La Trobe University in Melbourne** says that innovative techniques like the Transporter DVDs will help autistic children to begin processing information that is central for their social cognitive development. A new study shows that after using the DVD for 15 minutes a day over four weeks, most children with autism caught up with other children in their ability to recognise emotions. The DVD has been available in the UK and has been distributed to 40,000 families.

► [More information: www.scienceinpublic.com](http://www.scienceinpublic.com)

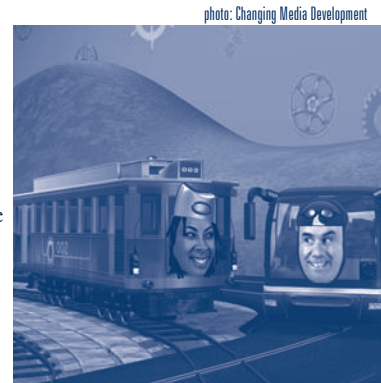


photo: Changing Media Development

New ways needed

New research funded by the **Australian Learning and Teaching Council** will investigate possible reforms of the way engineering is taught in the nation's universities.

The study, conducted by the **University of New South Wales**, the **University of Melbourne**, **Queensland University of Technology** and the **University of Sydney**, is aimed at identifying how Australia's engineering education can be changed to meet the needs of industry and students. The traditional model of engineering education in Australia, says project leader **Dr Reidsema** (UNSW), should move away from theory-heavy lectures towards teaching fundamentals and professional competencies through design-centred projects.

He leads the creation of the UNSW Faculty of Engineering's first year Design and Innovation subject - a course created in response to industry feedback. Dr Reidsema says new appointments of engineering educators “are increasingly influenced by the potential research output without explicit coupling to teaching, thereby undermining the ability to develop and deliver inquiry based curricula and courses”.

The two-year study will evaluate engineering curricula at the four partner universities against international best practice to design an Australian curriculum that builds technical and professional competencies through practical, project-based education.

► [More information: Carl Reidsema, 02 9385 4092, reidsema@unsw.edu.au](mailto:reidsema@unsw.edu.au)

Innovation: bridging the cultural gap

Business leaders are often criticised for being either risk averse and unwilling to pursue new ways of doing things or for taking too much risk and getting into untested business models. Depending on the economic cycle one or the other form of criticism takes centre stage. This is not to say that there aren't executives doing both – breaking new ground and being disciplined – at the same time. However, it can be argued that a globalised economy being reshaped by the economic resurgence of China and India is in need of more people capable of innovating beyond current business models, but who do so prudently. This piece explores the role of research training in development of such human capital.

Individuals undertaking a PhD program – or other forms of research training – need to work at the very limits of their discipline in order to contribute to its knowledge base. At the same time, their findings are subject to the methods and norms of, not only their own, but often several fields of research, as modern research work is increasingly interdisciplinary.

A researcher, over time, acquires the mindset of staring into the unknown and breaking new ground while considering each step on the basis of solid reasoning. There are not too many formal educational experiences that train for the development of such capability, a qualification currently underutilised in Australian companies which tend to employ PhD graduates in roles confined to R&D.

The case can be made that by increasingly employing research trained graduates in positions extending beyond R&D, Australian companies could strengthen the national innovation system against the competitive pressures of the global economy. This is also as PhD qualified managers are likely to show a preference for other highly educated employees thereby raising the calibre of the whole company. Indeed, in knowledge-intensive economies like Germany and Switzerland, PhD graduates are far more common in senior corporate roles. Yet for such a scenario to become commonplace in Australia, progress will be required on a number of fronts.

To prepare PhD graduates for a transition to the business world, universities have to broaden their research training to include skills that are relevant to the wider innovation system. There are examples, like the Group of Eight adopting its Future Leaders program and the Australian Technology Network with its e-Grad School initiative, that aim to include generic capabilities in research training. The scope for such broadening will be significantly enhanced if the length of the PhD program is extended as has been recommended by the National Innovation Review.

Companies that, faced with global competition, need to innovate in order to stay in the game are likely to be receptive to employing professionals trained to explore prudently new ground. This could be greatly facilitated if there were incentives in place to bridge the cultural gap currently separating the research sector and business. A step in this direction is the Researchers in Business initiative under the Federal Government's Enterprise Connect Program, which will subsidise the employment of a researcher in a business by 50% for a period of up to 12 months. A number of other internship schemes between universities and end users are under development and increased research collaboration between universities and end users will further assist in bridging the culture gap in the long-term.

However, even if both universities and the corporate sector were to come to the party, universities by broadening PhD programs and the corporate sector by employing more PhD graduates, it will be an uphill

battle. The Group of Eight submission to the National Innovation Review cites OECD figures stating that Australia produces only 2.3 new PhD graduates per 100 university graduates, compared with 3.9 for Canada, 10.1 for Switzerland and 11.2 for Germany. Australia may simply not be producing enough PhD graduates for placement in the wider economy and for replenishing an ageing academic and research workforce – the latter not only an Australian problem.

In recent years universities in the West have relied on talented students from countries such as China and India – especially in science and technology disciplines – populating their PhD programs. A large number of these students used to stay after their PhD but these countries are now in the process of building their own research capacity and it is likely that their salaries could match, if not exceed, Western salaries within a decade.

Consequently, the global war for talent is bound to intensify. In this context, if Australia is to increase the level of PhD graduates in the economy, it will need to support all possible mechanisms to boost PhD student enrolments in its universities. For domestic students, this will mean more attractive stipends and mechanisms for making up lost wages while pursuing a PhD. For the latter a waiver of undergraduate HECS liabilities could be considered. Extending the scope of the R&D tax concession to encompass employment of PhD graduates would be another mechanism worthy of exploration. For international students,

To prepare PhD graduates for a transition to the business world, universities have to broaden their research training to include skills that are relevant to the wider innovation system.

this will mean world class research environments, competitive stipends and availability of ready assistance with transition to the Australian workforce upon graduation.

Also important will be streamlining of immigration processes to make Australia an attractive place for migrants who already have a PhD.

The above discussion has focussed on relevance of research training to the business world. However, the same argument holds for government and community sectors.

In the 21st century the ability to stare into the unknown and to prudently find a path where none existed before may be too valuable a skill to be left only for academics.



Re-starting the engines of innovation

R&D expenditure is often taken as a proxy for investment in innovation. Further, government support for business expenditure on R&D is widely supported on the basis of the 'public good' spill-overs from private research. Both these propositions are easy to support, but do not get us far enough.

We need to remember that innovation policy is more than traditional research or science policy, so that the role of science and technology investment needs to be assessed within a broader context. (The corollary is that science policy needs to invoke more than just innovation policy considerations).

Technical R&D is not the only necessary input to innovation-fuelled competitiveness and productivity. Numerous studies show that continuing investment in skills development and workplace innovation is also a major productivity driver, as is investment in the innovation-releasing capabilities embedded in capital goods.

Like the word 'innovation', the term 'R&D' is in danger of losing clear meaning through vague and indiscriminate use. I would prefer to ban

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the stand-alone use of 'R&D' in favour of either 'research and technical development' or 'research and business development', depending on the context. This is not pedantry. We need to have clarity about the roles and functions associated with commercialisation.

The Review Panel's basic position is that universities and research agencies do research, but it is firms that commercialise. Innovation is a market-centric activity, pure and simple.

Innovating firms, however, need access to a robust research base from which to draw inventive inputs through a variety of means for technology transfer and information flows. We need to improve the depth, sustainability, and the accessibility – for firms – of our local research and talent base. In doing this we need:

- more flexible collaboration programmes and the removal of perverse incentives, especially those arising from the failure to fully fund research activity;
- to promote greater clarity about technology transfer roles and functions;
- to improve search and discovery mechanisms, and the 'information markets' around research capability;
- to reduce transaction costs and to simplify contractual frameworks; and
- to improve access to skills.

In innovation policy it is also very important to have great clarity, in proposing government intervention and public support, about precisely what problem we are trying to solve. Within an innovation context R&D is not an end in itself. The basic challenge is how we promote globally competitive firms and industries through:



- more firms investing in R&D and their technology skill base to support sustained productivity growth and firm competitiveness;
- assisting firms and industries to address emerging markets and new opportunities; and
- improving the ability of firms to change tack and adapt (thus avoiding lock-in to obsolescent technology or market models).

In addition, we need more innovation in the delivery of core public services, to increase their effectiveness and efficiency, and greater attention to securing social and industrial benefits through a focus on innovative responses to major national and global challenges like climate change, new energy sources, water, food security and population health.

The conclusions and recommendations of our recent review of the National Innovation System are predicated on ten guiding principles.

These are:

1. The market place is the crucible for innovation. The firm and the entrepreneur must be at the heart of innovation policy.
2. People and talent are what make it happen.
3. Access to knowledge and information flows is what connects and energises the players within the innovation system.
4. Innovation policy needs to address systemic points of failure – a broader notion than market failure.
5. A small country economy faces the challenge of accessing and leveraging the 98% of knowledge not invented locally – global integration is a necessity.
6. Innovation policy calls for a whole of government perspective and coordination.
7. National priorities for innovation should focus on the country's distinctive strengths and challenges.
8. We need to invest in gathering information about innovation to support better evidence-based policy.
9. There needs to be clarity about the role of players within the system.

10. Within a global economy there is an imperative to internationalise all aspects of the National Innovation System. In addition, the review's recommendations are calibrated to address the challenges of Australia's declining innovation performance and

Some might comment that we are overly ambitious in our bid for increased investment in innovation. Such claims do not bear close scrutiny.

capabilities relative to global leaders. Not only has our investment in innovation declined in absolute terms, but this is also showing up in poor relative industrial performance and competitiveness.

Against this background our report calls for early action to turnaround our steadily declining performance relative to the best in the world. The majority of our recommendations centre on both strengthening Australia's research base, and reducing the risks associated with the early stages of commercialisation.

The recommendations and thrusts of the *Venturous Australia* report imply almost doubling our rate of innovation investment over the next five years or so. Some might comment that we are overly ambitious in our bid for increased investment in innovation. Such claims do not bear close scrutiny. If we regarded Australia as a firm, then a base investment of 1% of turnover/GDP in the sustainability and viability of our enterprise as a going concern would be properly regarded as modest and even high-risk in the long-run. Nothing less will turn around our shrinking efforts, and put us on the path to an overarching goal of securing a place within the top quartile of high performing countries. And as Ross Garnaut reminds us, responding to the daunting national and global challenges

posed by climate change, and proportional measures for amelioration and adaptation, call for additional and step-function increases in our innovation efforts.

The review team now anxiously awaits the government's and the community's response to our proposals. The greatest risks I see are as follows.

1. The marshalling of alibis for inaction. These alibis could be crafted around the need for prudence in the face of global financial instability, or fuelled by the rival claims of sectional interests for priority.
2. Cherry picking from the proposals. What is needed is a balanced investment portfolio of innovation activity geared to long-run national interests and priorities.
3. Half measures and under-investment.

It is unlikely that there will be another such 'root and branch' review

Australia and the Argentine were once among the wealthiest countries in the world. Subsequent history reminds us that sustained prosperity cannot be taken for granted...

of Australia's innovation system for quite some time. If we do not act decisively now then that next review will report on even faster declines in national economic performance and productive capabilities.

Australia and the Argentine were once among the wealthiest countries in the world. Subsequent history reminds us that sustained prosperity cannot be taken for granted and that the prospects for our community depend on what we now do.

Review reactions

Ms Rebecca James, chief executive officer of Research Australia – "The green paper is a good start for addressing some of the issues that plague our research sector..." This report gives a strong signal to the government to act on infrastructure, commercialisation and collaboration... "It will be important for the government to continue to listen closely to the concerns of the health and medical researcher sector as they act on these recommendations."

Mr Kumar Parakala, president of the Australian Computer Society (ACS) – "The ACS is pleased with the recommendations the Innovation Review Paper (IRP) has made to address Australia's long term vision for an innovation system, in particular the emphasis on R&D tax concessions and lifting innovation spending. However we believe a greater emphasis must be placed on the role of ICT in the creation of a new system.

"It's unfortunate that the capabilities of the ICT industry have not been sufficiently acknowledged for the pivotal role they currently play - and the greater role they can play in developing an innovation nation."

Professor Bryan Gaensler, ARC Federation Fellow, University of Sydney – "It's pleasing to see a strong and explicit recommendation that Australia needs to better engage with international partners. While we

want to position ourselves to make discoveries and breakthroughs in our own backyard, we also must acknowledge that innovation is a global endeavour – new ideas are built up from hundreds of interconnected strands that often transcend national boundaries. Australia needs to put in place concrete steps to better connect into the vast amount of knowledge and expertise based beyond our shores."

Professor Ken Baldwin, president of FASTS – "FASTS welcomes *Venturous Australia* with its clear aspirational goal of revitalising Australia's innovation performance.

In particular we note the commitment to:

- fund the full costs of research;
- restore the decline in the past 15 years of publicly funded research;
- provide new incentives for ramping up private sector innovation such as Tax Credits;
- providing a long term commitment to national infrastructure through funding of a new NCRIS scheme;
- establish a National Innovation Council to coordinate our research framework.

We are concerned, however, that the emphasis on success in competitive grants and performance in Excellence in Research Australia to drive University research block grants will not encourage end-user driven external collaboration."

Attack awareness

The **National Centre for Biosecurity** (NCB), a collaborative undertaking by **The Australian National University** and **The University of Sydney**, has been officially launched. Co-located at both campuses, the NCB draws on the universities' complementary expertise in the areas of microbiology, medicine, politics, security, public health, animal health, epidemiology, ethics, history and law.

The centre's mission is to engage with government, policymakers, business leaders and the community and to foster understanding of emerging infectious disease threats and the risks associated with biological attacks by terrorist groups on Australians at home and abroad.

According to **Professor Ian Ramshaw**, co-director of the centre, the field of synthetic biology, where DNA can be chemically synthesised to create a living organism, is rapidly developing. The security implications and risks of this technology were already being examined by governments in Europe and the US, but less so in Australia.

► **More information:** Jake O'Shaughnessy, 02 9351 4312, jacob@media.usyd.edu.au

Together separating

A new \$4.6 million centre of excellence at the **University of Tasmania** is a joint investment by pharmaceutical company **Pfizer**, the **Tasmanian State Government** and the **University of Tasmania**. The **Pfizer Analytical Research Centre** (PARC) in Hobart will drive advances in the production and quality of safe pharmaceutical drugs, in partnership with the PARC centre at Belgium's **Ghent University**.

PARC Hobart director, **Professor Paul Haddad**, says the collaboration between Pfizer scientists and the university's **Australian Centre for Research on Separation Science** (ACROSS) team was a significant initiative. The collaboration will provide a direct link between experts in analytical chemistry and the pharmaceutical industry.

► **More information:** Paul Haddad, 03 6226 2179

Animal research hub

The \$33 million **Centre for Advanced Animal Science** (CAAS) at the **University of Queensland** (UQ) Gatton Campus is now operating.

The collaborative venture between UQ and the **Queensland Government** has led to an extensive and unique range of animal research facilities. Facilities include biosecurity containment rooms for disease and vaccine research, grouped and individual animal pens for nutrition trials, a feed processing shed and cattle handling yards.

CAAS researchers will investigate ways to reduce greenhouse emissions in livestock, ensure greater beef supply through a tick vaccine and improve biosecurity.

► **More information:** Ms Robinson, 07 3365 9723, penny.robinson@uq.edu.au.



Smart launch

The Brisbane node of the Smart Services CRC has been launched at the **Queensland University of Technology** (QUT). The QUT is the largest academic contributor to the CRC, in which the **Queensland Government** and Queensland partners **System Applications and**

Products, Suncorp and **RACQ** have invested \$38 million.

The CRC's 18 industry, government and research partners will invest more than \$120 million over a seven-year period, including a \$30.8 million grant from the **Department of Innovation, Industry, Science and Research**. The focus of the Smart Services research is in delivering new and improved services for the services economy.

► **More information:** Annette Dockerty, 02 8374 5086, Annette.Dockerty@smartservicescrc.com.au

photo: abc.comms.co.uk

Global breeding

The **University of Western Australia** is to establish an **International Centre for Plant Breeding Education and Research**, which is to address the looming global shortage in plant breeding expertise.

The new centre will provide much needed integrated expertise in genetics, biotechnology and plant breeding to help provide the next generation of professional plant breeders for Australia, the Asia-Pacific region, and the Indian Ocean rim.

The new centre will offer a four-year undergraduate science degree in genetics and breeding and an undergraduate degree in agricultural science, with a component of genetics and breeding. Both degrees include training in crop agronomy, plant physiology, biometrics and related disciplines.

It will also offer post-graduate study in genetics and plant breeding, as well as in-service training for practising plant breeders or seeds industry personnel.

► **More information:** Alan Robson, 08 6488 2809

Life saving at heart

The **University of Adelaide** has launched its new **Centre for Stem Cell Research**, aimed at turning novel basic research into potential life-saving treatments. It will draw together almost 100 research scientists and 80 research students from 18 research groups based at the **University of Adelaide**, the **Women's and Children's Hospital**, the **Institute of Medical and Veterinary Sciences**, **Hanson Institute** and the **Queen Elizabeth Hospital**.

The centre will provide early career research fellowships, the funding of which initially will come from the university and **Bellberry Limited**, a not-for-profit company managing the only private human research ethics committees in Australia.

► **More information:** Robyn Mills, 08 8303 6341, robyn.mills@adelaide.edu.au

Innovation institute

RMIT University has established a new research institute, the **Platform Technologies Research Institute**, which will focus on radically improving the operational capabilities of a range of industries through the integration of smart materials and systems into technology platforms.

Researchers from across disciplines will be developing integrated solutions for industries ranging from aerospace to information security. The key areas will be: nanotechnology, sports engineering technology, e-security solutions and intelligent information technologies.

The institute's expertise covers a wide range of discipline areas, including aerospace, electrical, electronic and mechanical engineering, materials science, information technologies, modelling and photonics.

► **More information:** Xinghuo Yu, 03 9925 5317, 0417 704 091.

UltraBattery goes global

The CSIRO-invented UltraBattery is set to have a global impact on greenhouse gas emissions after Japan's **Furukawa Battery Company** and US manufacturer **East Penn** have signed an international commercialisation and distribution agreement for the technology.



photo: CSIRO

The exclusive sub-license agreement will see the UltraBattery distributed by East Penn to the automotive and motive power sector throughout North America, Mexico and Canada.

Furukawa Battery Company, which has already begun production, will release the technology in Japan and Thailand.

CSIRO's UltraBattery combines an enhanced-power negative electrode and a lead acid battery in a single unit and has applications for low emissions transport and renewable energy storage. Previous tests show it has a life cycle that is at least four times longer and produces 50% more power than conventional energy storage systems. The technology is also approximately 70% cheaper than the batteries currently used in hybrid electric vehicles (HEVs).

The technology is scheduled to be commercially available in the automotive market and for motive power applications throughout Japan, Thailand, North America, Mexico and Canada within two years. The UltraBattery is not yet licensed in Australia for automotive applications. CSIRO is accepting expressions of interest for manufacture and distribution of the technology in this region.

► **More information:** www.csiro.au/news/UltraBattery4HybridCars.html

Shaping up

Wave front imaging company **Iatia** has successfully completed the twelfth milestone for its \$2.7 million Capability and Technology Demonstrator (CTD) contract with the **Defence Science and Technology Organisation (DSTO)**. The payment of \$588,000 for the twelfth milestone was received in July 2008. Completion of the contract and the final payment of \$148,500 will occur with the submission of a final report at the end of the year.

Iatia's imaging technology utilises conventional digital imaging capability, and produces a new image based on shape information alone that is independent of the image provided by colour and contrast. This image is then suitable for further processing by conventional image enhancement, image-processing and image-recognition software.

Iatia won the 3 years DSTO contract in 2005 to transfer its unique imaging capability to defense related applications.

► **More information:** www.iatia.com.au/

It's a dogs life

Genetic Technologies Limited has launched a DNA-based dog breed identification test, **BITSA** (Breed Identification Through Scientific Analysis), that enables owners to identify the breed makeup of mixed breed dogs. The technology utilises breed-specific genetic signatures to identify a dog's breed ancestry.

According to chief executive officer **Michael Obanessian**, the BITSA dog breed identification test has the potential to save dogs' lives. "Every day, hundreds of people purchase a dog only to find that it does not meet their needs or lifestyle, or that the dog exhibits a challenging behaviour

often characteristic of its breed. Many of these pets become unwanted especially when acquired on impulse. These dogs often end up in pounds and many are subsequently euthanized."

The BITSA test enables potential dog owners to 'DNA road test' a dog to gain insight into its breed history and hence understand its likely physical characteristics, temperament and traits, he says. The test can also provide important health information specific to the particular breed.

► **More information:** www.gtg.com.au/

Embryonic progress

Australia's first licences allowing the creation of cloned embryos for the derivation of human embryonic stem cell lines, have been issued by the **Embryo Research Licensing Committee** of the **National Health and Medical Research Council**.

Sydney IVF Limited has been granted three licences to derive human embryonic stem cell lines from embryos created using Somatic Cell Nuclear Transfer (SCNT) techniques and clinically unusable human eggs.

SCNT uses a DNA containing nucleus of an unfertilised egg to replace the nucleus of an adult cell, such as a skin cell, which can create cloned embryos potentially providing embryonic stem cells for therapeutic purposes (therapeutic cloning). SCNT can also be used for reproductive cloning, however this is illegal in Australia and cannot be carried out under any circumstances.

The use of excess IVF embryos and the creation and use of other embryos in research is restricted by law through national legislation. The *Research Involving Human Embryos Act 2002* and the *Prohibition of Human Cloning for Reproduction Act 2002* establish a strong regulatory framework and prohibit human cloning for reproductive purposes and a range of other unacceptable practices.

► **More information:** www.nhmrc.gov.au/media/noticeboard/notice08/scnt.htm

Non opioid phase II

Xenome Limited has initiated a phase II study of Xen2174, a new drug for the treatment of moderate to severe pain. It is the first trial of Xen2174 for the control of acute post-operative pain and will enrol approximately 200 patients at multiple clinical sites in the US.

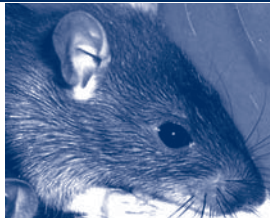
The study will evaluate the safety and efficacy of Xen2174 administered as a single intrathecal administration to patients undergoing unilateral bunionectomy (i.e. surgery to remove bunions on one foot), a standard model for the assessment of acute pain therapies.

Results from the study will be assessed against multiple safety and efficacy endpoints and will supplement the clinical data previously generated in a chronic pain setting, where Xen2174 was safe and well-tolerated across a broad range of doses and showed evidence for an analgesic effect.

Dr Ian Nisbet, Xenome's chief executive officer and managing director, says: "If successful, it will provide proof-of-concept in a well-accepted human model of post-surgical pain. Importantly, the study was initiated on schedule and we intend to complete it and announce the results in the second half of 2009."

Xen2174 acts via a completely different mechanism compared to opioid drugs usually used to treat severe post-operative pain. Early studies have shown that Xen2174 has the potential to overcome some of the disadvantages of opioids, which can cause constipation, nausea, sleepiness and, in isolated cases, the slowing or cessation of breathing.

► **More information:** www.xenome.com



Ratty benefit

Stem Cell Sciences plc (SCS) has announced that two independent laboratories in the UK and USA have achieved germ-line transmission from embryonic stem (ES) cells in rats using technologies exclusively licensed to the company by **Edinburgh University**.

Full scientific reports on this independently verified breakthrough, have been submitted to a major scientific journal for publication.

Under the terms of its agreement with Edinburgh University, SCS has global exclusive rights to commercialise the rat ES cells, the specific culture medium used to generate and grow the cells, and rats derived from them. The company has exclusively licensed two patents covering this new technology from the University and plans to engage in confidential discussions with interested parties seeking a sublicense to use rat ES cells in their commercial drug discovery programmes.

The technology allows the generation of knock-out rat models, in which the effect of gene deletion is studied, as well as the generation of knock-in models, which involves the insertion of genes.

According to SCS chief executive officer **Dr Alastair Riddell**, the technology will enable the generation of transgenic rat models for drug discovery in a very similar manner to the already widely used transgenic mice models. He says rats are viewed as more predictable human models than mice for several psychiatric, neurological and cardiovascular drug targets. "The ability to knock-in human genes should also enable drug metabolism studies to be undertaken with higher predictability in rats than previously available," he says.

► [More information: www.stemcellsciences.com/](http://www.stemcellsciences.com/)

Pluripotent helper

United States Food and Drug Administration (FDA) has granted regenerative medicine company **Mesoblast Limited** an orphan drug designation for the use of the patented adult stem cell technology in patients undergoing bone marrow transplantation. Orphan drug designation allows for an accelerated review process by the FDA, seven-year market exclusivity in the US upon obtaining marketing authorisation, tax benefits, and exemption from user fees.

The FDA awarded Mesoblast's US-based sister company, **Angioblast Systems Inc.**, the right to use the proprietary 'off-the-shelf' allogeneic mesenchymal precursor cells for insufficient haematopoietic stem cell production in patients with hematologic malignancies who have failed treatment with conventional chemotherapy.

Hematopoietic stem cells are used to regenerate bone marrow in patients whose own bone marrow is damaged and destroyed by treatments for various cancers. The greater the number of haematopoietic stem cells transplanted, the greater the likelihood that the bone marrow transplant will successfully engraft and regenerate a patient's damaged bone marrow.

In preclinical studies, the patented allogeneic mesenchymal precursor cells have been shown to significantly expand the number of haematopoietic stem cells in culture. The results of these studies formed the basis for the successful orphan drug submission to the FDA.

► [More information: www.mesoblast.com/](http://www.mesoblast.com/)

Anti-inflammatory milestones

Updating on major inflammatory compounds in its drug development pipeline, **Arana Therapeutics Limited** has said it has developed a new antibody candidate ART123 targeting inflammatory diseases and it plans

to start a Phase I clinical trial for age-related macular degeneration (AMD) candidate PMX53 in 2009.

ART123 was produced using Arana's proprietary antibody engineering technologies and is targeting the interleukin 12/23 pathway implicated in the pathogenesis of psoriasis and other inflammatory disorders. Patents have been filed around the novel mechanism of action of ART123, which has demonstrated efficacy in a pre-clinical psoriasis model. Preclinical safety studies are expected to commence in 2010.

Arana has also developed and tested several new formulations of PMX53, a C5a complement inhibitor, in animal models of AMD, psoriasis and osteoarthritis. The AMD clinical trial is expected to start in the first half of 2009, subject to the successful completion of ongoing pre-clinical dose-ranging studies. Data from long-term pre-clinical osteoarthritis studies are also expected to be available in early 2009. Arana has no current plans for further development of the psoriasis indication.

Arana also said that lead compound ART621, which belongs to the 'anti-TNF' class of drugs, continues to progress in its development with several major milestones expected in the next six months. These include an Investigational New Drug application for the rheumatoid arthritis indication in the fourth quarter of 2008, a Phase II study in rheumatoid arthritis also planned to commence in the fourth quarter of 2008, and safety and efficacy data from a psoriasis study expected in the first quarter of 2009.

► [More information: www.arana.com/news_media.htm](http://www.arana.com/news_media.htm)

Clearing the air

According to pharmaceutical company **Pharmaxis**, the first subject has enrolled into the second pivotal Phase III clinical trial evaluating Bronchitol in sufferers of cystic fibrosis, a fatal disease affecting more than 75,000 people worldwide. The Phase III trial is being conducted in 41 hospitals across North America, Argentina and Germany, and is the final clinical step before Pharmaxis seeks approval to market Bronchitol for cystic fibrosis in the United States.

Bronchitol is a patented, inhalable dry powder formulation of mannitol that can be administered by a convenient, hand-held pocket sized device. Pharmaxis is developing the treatment to improve mucus clearance in the lungs of patients with cystic fibrosis, bronchiectasis and chronic obstructive airway diseases. Bronchitol has been awarded fast-track status in the US, and orphan drug designation in both the US and EU.

The Phase III clinical trial is designed to include a 26-week efficacy treatment period, followed by a 26-week safety period. The efficacy component of the trial is a randomized, double-blind investigation of Bronchitol twice daily in approximately 300 patients with cystic fibrosis.

The trial is enrolling cystic fibrosis patients aged six years and older. Participants will be assessed for improvements in lung function, infectious episodes, antibiotic use, quality of life and a range of health economic measures.

► [More information: www.pharmaxis.com.au/](http://www.pharmaxis.com.au/)

DIY detection

Polartechnics has reached a strategic agreement with **Genera Biosystems** and **Healthscope**, for the commercialisation of CerviScreen, a new device to identify sexually transmitted Human Papillomavirus (HPV) using self-sampled specimens.

CerviScreen, initially to be launched in Australia, South East Asia and Europe, could dramatically improve the detection rates of women at risk

of developing cervical cancer caused by HPV. Women will perform their own vaginal swab using Polartechnics' specifically designed Genswab™ collection device and report results back to their nominated doctor, who may recommend further tests, including a conventional Pap smear.

Recently launched vaccines against HPV types 16 and 18 are, through government programs, mostly directed to early teenage schoolgirls, and screening remains important as HPV types 16 and 18 account for only 70% of cases of cervical cancer.

Recent studies have reported that of the women that would not present for Pap smears, approximately 90% would be prepared to self-sample for a HPV DNA screen if the opportunity were available.

Subject to the completion of a small clinical study, and appropriate regulatory clearances, CerviScreen is expected to be commercially available in Australia in the first quarter of 2009, with a roll-out in South East Asia and Europe to follow later in the year. Other jurisdictions could follow and discussions with potential distributors in a number of markets are in progress.

► [More information: www.polartechnics.com.au/IRM/Content/Index.htm](http://www.polartechnics.com.au/IRM/Content/Index.htm)

Ulcer reduced

The first patient treated with VitroGro® from biomedical company **Tissue Therapies Limited** showed a reduced area of a chronic venous ulceration by more than 60% after only 21 days of treatment. The 70-year-old grandmother experienced also a marked improvement in the health of the tissue at the edge of the wound, and full healing is expected. There were no adverse reactions.

Chief executive officer **Dr Steven Mercer** says that while the clinical progress of one patient is not conclusive, VitroGro® did perform clinically as was expected. "There is no doubt that the rapid reduction in ulcer size and improvement in health of the skin in the wound area are highly unusual for a chronic venous ulcer," he says. "With the use of VitroGro®, it appears that [the patient's] ulcer is healing in a way that is exceptional.

► [More information: www.tissuetherapies.com/](http://www.tissuetherapies.com/)

Milestone benefits

According to **Virax Holdings Limited**, **Transgene SA** of Strasbourg, France has announced further positive Phase IIb clinical trial results for its therapeutic cancer vaccine TG4010 when used as an adjunct to first line chemotherapy in patients with advanced non-small cell lung cancer.

TG4010 utilises Virax's Co-X-GenTM technology under a License Agreement according to which Virax will benefit from milestone and royalty payments upon Transgene achieving relevant development milestones and sale of product.

Transgene had previously reported that the Phase IIb trial met its primary endpoint for progression free survival. According to Transgene, the new clinical data indicated that after 17 months of follow up long time survival was greater for those patients who received TG4010 in combination with chemotherapy compared to those receiving chemotherapy alone. TG4010 vaccination also did not adversely affect the quality of life of patients.

► [More information: www.virax.com.au/](http://www.virax.com.au/)

The eyes have it

Solbec Pharmaceuticals Ltd has executed an Option Agreement for the acquisition of **VISTA Laser Eye Center Sdn Bhd** (VISTA), a Southeast

Asian Eye Care Business trading under the name of VISTA Vision Specialist. VISTA, which owns two best-practice clinics and a number of current and planned clinics, specialises in cataract and refractive eye surgery and is expanding into retinal disease markets serving Malaysia, neighbouring countries and the highly attractive destination medical tourist segment.

Destination medical tourists comprise an increasing percentage of eye care surgical revenue at VISTA, and in 2007 VISTA achieved the Special Achievement Award from the **Malaysian Ministry of Tourism** in this regard. It also received the Best LASIK centre award in 2006. VISTA utilises the latest eye lasers and cataract technology, including the iLasik technology used by the **National Aeronautics and Space Administration** (NASA) and the **US Department of Defense**.

In the cataract surgery arena, for the last two consecutive years VISTA has received an award as the clinic that implants the most ReSTOR Multifocal lenses in Malaysia by Alcon, one of the largest ophthalmic companies in the world. Cataract multifocal surgery is now considered the fastest growing segment of cataract surgery.

► [More information: www.solbec.com.au/news.asp?ID=421](http://www.solbec.com.au/news.asp?ID=421)

Streaking milestone...

LabTech Systems, an Australian clinical and diagnostic technology developer, has achieved a key milestone with its international partner, **bioMérieux**, triggering a €1 million payment (approximately \$1.74 million). The milestone is one of several under the exclusive license agreement with bioMérieux signed in 2007 for the commercialisation of the Company's MicroStreak® technology. The milestone was achieved when LabTech Systems sent the first Pilot Production Units to Europe in preparation for the product's full commercial launch by bioMérieux.

LabTech Systems has developed high-speed robotic systems to carry out a central routine task in diagnostic microbiology, agar plate streaking, and the units and consumables will be manufactured, marketed and distributed by bioMérieux.

The launch of the system, known as PREVI™ Isola, is planned for the fourth quarter of CY08. As well as an upfront payment and several milestones, the deal contains a minimum royalty component that will come into effect on 1 January 2009.

► [More information: www.labtechsystems.com/](http://www.labtechsystems.com/)

... and chinese patent

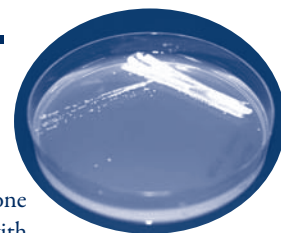
A design patent covering **LabTech Systems'** MicroStreak® applicator has been granted in China. As royalties from applicator sales comprise a significant long-term revenue stream from this product, the protection of its design by patents is vitally important.

This applicator design patent is the first to be granted from LabTech Systems' suite of intellectual property surrounding the MicroStreak® system. Other patents covering both the applicator and several key components of the automated robotic system are pending.

► [More information: www.labtechsystems.com/media.php](http://www.labtechsystems.com/media.php)

Lucrative deal

NeuroSolutions Ltd, a 100% subsidiary of neuroscience services provider and drug development company **NeuroDiscovery Ltd**, has entered into



a research agreement with a major international pharmaceutical firm, the name of which remains undisclosed. The contract, worth £80,000 (approximately \$170,000), is expected to take around eight months to complete. Under the terms of the agreement, NeuroSolutions will use its specialist pharmacology and electrophysiology expertise to test specific compounds from the client's compound library.

► [More information: www.neurodiscoveryltd.com/](http://www.neurodiscoveryltd.com/)

Painless gain

NeuroDiscovery Ltd has released its consolidated final results and operational highlights for the year ending 30 June 2008. Achievements include the proof-of-concept with NSL-101, which was shown to be effective in a Phase IIa trial to alleviate the pain associated with dental planing and scaling, a procedure to treat periodontitis. The company has also transitioned NSL-043 successfully through Phase I clinical testing, completing two trials in human volunteers that demonstrated excellent safety and tolerability of this development compound for potential use in neuropathic pain.

The net loss before tax for the year was \$2.77 million, up from a loss of \$1.67 million for the year ending 30 June 2007. This increase predominantly relates to increased expenditure on the group's development programmes, as NeuroDiscovery's drug pipeline continues to successfully progress through clinical trials.

Revenues were up 18% to \$2.19 million from the previous year's \$1.85 million. This improvement relates in part to expansion of the specialist services being offered by its 100% subsidiary NeuroSolutions, including the introduction of automated hERG screening (cardiac safety testing).

Gross profit was up 24% to \$1.1 million from the previous year's \$0.9 million. This was in line with increased revenues from the specialist services business. The company's cash position is \$1.75 million, which is in line with budget expectations.

► [More information: www.neurodiscoveryltd.com/](http://www.neurodiscoveryltd.com/)

Positive outlook

Regenerative medicine company Mesoblast Limited has announced its financial results for the year ending 30 June 2008, and says it is well positioned with sufficient cash reserves for its ongoing clinical trials activities and near-term strategic objectives.

Mesoblast's cash reserves at 30 June 2008 were \$14.1 million. The company's operating cash use was \$6.2 million, in line with expectations and consistent with FY2007.

According to the company, significant achievements included the completion of a pilot clinical trial for non-healing, long bone fractures with strong positive outcomes, and encouraging safety data obtained in a Phase 2 trial for spinal fusion, using Mesoblast's allogeneic or 'off-the-shelf' adult stem cells. In addition, preclinical cartilage trials found a single injection of Mesoblast's allogeneic cells into knee joints damaged by osteoarthritis could both prevent further deterioration and protect cartilage tissue lining the damaged joint.

Other achievements were the heart disease pilot clinical trial which showed positive outcomes at six months with no cell-related adverse events, a successful IND submission to the **United States Food and Drug Administration** (FDA), which cleared commencement of a Phase 2 clinical trial using allogeneic stem cells in patients with congestive heart failure, and the broadening of new clinical applications, including age-related macular degeneration and diabetic retinopathy.

Mesoblast has increased its equity holding in US-based sister company **Angioblast Systems Inc.** to 39.1%. Angioblast is simultaneously advancing the platform stem cell technology towards commercialisation of novel treatments for cardiac, vascular, and eye conditions.

During the financial year, Angioblast also entered into an important new collaborative arrangement with Abbott, a major healthcare company. Abbott is providing funding for a collaborative program in heart failure, and has made an equity-based investment of US\$5 million.

► [More information: www.mesoblast.com/](http://www.mesoblast.com/)

Of viruses and microbes

According to the 2008 financial year results of **Avexa Limited**, the company has opened up more than 100 Phase III sites in North America, Europe, Israel, Australia and South America since the initiation of the first Phase III sites were announced in February.

The formal stage of the Phase IIb study of apricitabine (ATC) was concluded with positive results in terms of antiviral activity, safety, increases in CD4 cells and lack of drug-resistance. ATC is now in a **FDA** approved Phase III trial and is progressing well. The majority of patients enrolled into the Phase IIb trial have opted to enter the extension study and are still receiving ATC, some for over three years now.

Avexa has renegotiated its license arrangements with **Shire plc** for ATC. The company says that in addition to the continued development of ATC, considerable progress has been made in all three of Avexa's preclinical programs. The antimicrobial program continues to clearly demonstrate the required safety and antimicrobial properties necessary to move the lead compound forward into the clinic.

Avexa's Hepatitis C virus program was initiated relatively recently, and the speedy progress in setting up the new assays and screens has been rewarded with the discovery of a number of novel compounds with activity against Avexa's undisclosed but essential target.

► [More information: www.avexa.com.au](http://www.avexa.com.au)

Make over

The preliminary 2008 financial year results of **Avita Medical Limited** include a merger with **Visiomed Group Ltd**, which was completed in February 2008, and a number of significant changes to the organisational structure and focus in the period post merger.

The company changed its name to Avita Medical Ltd and completed a reorganisation of capital structure through a 1-for-10 share consolidation.

Sales revenue in the year was \$1,085 million compared to \$0.932 million in the prior period. The absence of sales of CellSpray® and CellSpray XP® in the current year, following the decision to put sales of these products on hold, has been more than compensated by the revenue from the company's respiratory products in the period following the merger with Visiomed.

The net loss for the year before amortisation and impairment of intangible assets was \$4,031 million which compares to a loss of \$8,699 million in the previous period. The net loss for the year after including amortisation and impairment of intangible assets was \$12,188 million (2007: \$15,065 million).

Operating expenses excluding amortisation and impairment of intangible assets have reduced by \$3,478 million representing a decrease of 37%. The company is in a strong cash position with a cash balance at 30 June 2008 of \$9.3 million.

► [More information: www.clinicalcellculture.com/one/05_01_news.asp](http://www.clinicalcellculture.com/one/05_01_news.asp)

Money for business

The ACT Government has committed \$1.5 million to a new **Lighthouse Business Innovation Centre (LBIC)**, which will offer services ranging from free or at-cost events, seminars and workshops, through to fee-for-service activities and longer-term service contracts. It will assist and advise high-tech businesses to become investment-ready. The centre has grown out of the **Epicorp incubator**, which has contributed another \$1 million. The LBIC will be located on the campus of the **University of Canberra**.

The ACT Government will further allocate \$1.5 million over the next three years to support a new InnovationConnect grants program which, according to Chief Minister **John Stanhope**, “will ensure that emerging innovators and entrepreneurs – generally those with a turnover of less than \$1 million – have the early funding support and stimulation they need to accelerate their progress along the road to commercialisation.” Grants are expected to be in the \$10,000 to \$20,000 range and matched by the same amount of funding from the applicant.

► **More information:** Ms Layland, 6205 9777, penelope.layland@act.gov.au

Tassi advance

The **Tasmanian Government** will commission the **Australian Innovation Research Centre (AIRC)** to prepare the *Tasmanian Innovation Strategy (TIS)*. The AIRC conducts research on key issues in innovation performance and economic development, and is the only one of its kind in Australia. According to **Premier David Bartlett**, the TIS will identify available opportunities through an increased investment in innovation. It will also identify key roadblocks to increased innovation in key industry sectors and recommend how the Government can best contribute to their removal.

The strategy development is expected to involve three stages:

1. identifying sectors of the Tasmanian economy with greatest potential to grow through innovation and build long term prosperity for the state;
2. profiling the patterns of innovation that occur in these sectors with a view to identifying particular challenges and opportunities in the Tasmanian context; and
3. developing recommendations for action where the government can contribute to closing the gaps and capturing opportunities for industries with the greatest innovative potential.

The AIRC’s work will be informed by the views of a reference group representing key stakeholders in Tasmania’s science, technology and industry communities.

► **More information:** 03 6233 6573

Cashed up operations

The **Victorian Government** has provided \$25.7 million to Victoria’s 13 major independent medical research institutes in order to support their day to day operations in 2008-09. The awarded research institutes, says Innovation Minister **Gavin Jennings**, were selected on the basis of growth, determined by eligible research grant income; and innovation, determined by R&D capacity, commercial and clinical translation, and research income.

The Operational Infrastructure Support program grants go to: **Baker Heart Research Institute; Bernard O’Brien Institute of Microsurgery; Bionic Ear Institute, Burnet Institute; Centre for Eye Research Australia; Florey Neuroscience Institutes; Ludwig Institute for Cancer Research; Mental Health Research Institute; Monash Institute of Medical Research; Murdoch Children’s Research Institute; Prince Henry’s Institute; St Vincent’s Institute; and the Walter and Eliza Hall Institute.**

► **More information:** www.premier.vic.gov.au

CO₂ clean up

In Queensland, **Tarong Energy** has joined forces with **CSIRO** on a \$5 million pilot project to capture around 1500 tonnes of CO₂ emissions at the State’s biggest power station. The two year project, the first of its kind in Queensland, will start immediately. The pilot plant is expected to be up and running in the first half of 2009.

Victoria has introduced Australia’s first legislation enabling the onshore injection and permanent storage of carbon dioxide and other greenhouse gases. According to Energy and Resources Minister **Peter Batchelor**, the proposed *Greenhouse Gas Geological Sequestration Bill 2008* will ensure onshore greenhouse gas injection and storage were conducted safely and sustainably, and in a transparent and consultative way that meets community expectations.

“The Bill also includes protection measures for private landholders and provisions for thorough consultation with the community, including relevant municipal councils, and public and private landholders in areas where greenhouse gas injection and storage activities are proposed. The consent of private land owners and a compensation agreement will be required for any CCS activities on private land.”

► **More information:** Ellen McIntyre, 07 3225 1819, www.premier.vic.gov.au

Emerging needs purpose

The newly opened one-stop \$11 million medical engineering research facility at the **Prince Charles Hospital** in Queensland is unique in Australia for combining surgical skills training with biological and biomechanical research. The facility is jointly funded by the **Queensland Government**, the **Queensland University of Technology (QUT)** and industry partners **Medtronic** and **Stryker**, and is a satellite of QUT’s **Institute of Health and Biomedical Innovation**.

Designed to meet emerging clinical needs in orthopaedic artificial organs research and surgical skills training, it is the first purpose-built facility to support the full cycle of research, validation, commercialisation, and training activities necessary to ensure widespread adoption of new medical devices and techniques. Its research will focus on solving clinical problems identified by clinicians in their practice, and discovering and developing new techniques, materials, products and manufacturing methods for medical devices. It will also focus on training of clinicians and other health professionals in new products and techniques. Targeted research areas will include bone replacement and

photo: Tarong Energy



cartilage replacement systems, bone and spinal surgical procedures, innovative concepts for artificial limbs and cardiac devices.

► **More information:** [Kate Van Poelgeest, 07 3234 1185, 0458 449 267](#)

Super money

A Queensland universities consortium, the **Queensland Cyber Infrastructure Foundation (QCIF)** will receive \$8.5 million from the **Queensland Government** for super computers, which are to boost research projects ranging from breast cancer detection to the digital reconstruction of an Egyptian Mummy. Industry Minister **Desley Boyle** says the QCIF was set up in 2001 to increase Queensland's innovative capacity using supercomputers, high-capacity data archives, visualisation and networking. Its members are **James Cook University, Central Queensland University, Griffith University, Queensland University of Technology, the University of Queensland** and the **University of Southern Queensland**. The infrastructure and eResearch staff of the QCIF supports member universities and works to encourage the uptake of advanced ICT capabilities by industry.

Following on from a previous State Government investment of \$16 million in 2002-2007, the \$8.5 million is expected to leverage at least \$5.1 million of funding under the **Australian Government National Collaborative Research Infrastructure Strategy** and a further \$16 million cash and in-kind support from the QCIF's member universities.

Since 2001, the QCIF has supported around 60 research projects involving 340 researchers across the six universities, cutting across areas like nanotechnology, drug design, security, biosecurity, mining and environmental engineering and medical imaging, Ms Boyle says.

► **More information:** [Bernard Pailthorpe, 07 3365 6131](#)

Collaborative move

Victorian stem cell researchers working in collaboration with Californian scientists can now compete for jointly funded grants from the world's largest funding provider for stem cell research, the **California Institute for Regenerative Medicine (CIRM)**. Grants will support projects that can meet medical needs or address bottlenecks in the translation of stem cell biology into new therapies.

The CIRM 'Early Translational Research' grants program aims to move basic research in stem cell science towards real clinical outcomes.

"The Brumby Government has invested \$5 million from the Biotechnology Bridges program, part of its 2008 Innovation Statement, *Innovation: Victoria's Future*, to support the local research components of these collaborations," says Innovation Minister **Gavin Jennings**. "For successful joint applicants, Victoria will help fund the research undertaken inside the state and CIRM will fund the research undertaken in California by Californian researchers. Already, more than 25 of our stem cell researchers and research teams have indicated they are interested in jointly participating in CIRM-funded research projects."

► **More information:** [www.premier.vic.gov.au](#)

Quadruple the money

Victorian Small Business Minister **Joe Helper** has announced a \$4 million fund as part of Victoria's Agenda for New Manufacturing program, which will help small and medium-sized manufacturers get better value for their R&D investments. Available over the next four years, the funding will allow the **Victorian Centre for**

Advanced Material Manufacturing (VCAMM) to double the investments of Victorian manufacturers that seek to bring high-value products to market. VCAMM plays an important role in matching innovative businesses of all kinds with university researchers, the **CSIRO** and Cooperative Research Centres.

According to Mr Helper, a business can, under matched funding arrangements, leverage its investment so that each dollar invested brings one from VCAMM and two from the **Commonwealth Government**.

► **More information:** [www.premier.vic.gov.au](#)

Shark tracking

Web surfers will be able to monitor the movements of a Mako Shark called Lilly as she swims around the globe, through a new online satellite tracking system launched by the **South Australian Government**.

Following the Henry the Sea-lion website, people now can follow Lilly the Mako Shark and, over time, other marine creatures as they travel around the world. Lilly the Mako Shark was intercepted by scientists in June, while swimming through the Great Australian Bight and a satellite tag was attached to her fin.

The online system will allow teachers to access information that will give geography and biology classes an interesting new twist. Online games were also being developed.

A joint venture between partners **Marine Innovation SA**, which includes the **South Australian Research and Development Institute (SARDI) – Aquatic Sciences**, the **Department for Environment and Heritage**, **Flinders University**, the **University of Adelaide**, and the **SA Museum** together with **Zoos SA** and **Project Dolphin Safe**, has developed the tracking system, which is aimed at encouraging children to take an interest in the marine environment.

► **More information:** [Paul Rogers, 08 8207 5487, 0428 113 236](#)

Playing safe

Bringing together biosecurity experts and industry leaders the new **Biosecurity Queensland Ministerial Advisory Council** will provide the **Queensland Government** with independent strategic advice across the spectrum of primary production and environmental biosecurity.

It will be asked for advice on a range of state wide, regional and industry specific issues. It is expected that senior level representatives of key stakeholder bodies will sit on the Council along with members with specialist expertise.

► **More information:** [07 3239 6530](#)

Thermostatic water valve

GSA Industries, an Eagle Farm manufacturer trading as **Reliance Worldwide**, has received \$250,000 in funding under the **Queensland Government's** Business and Industry Transformation Incentives scheme to help design, commercialise and export a revolutionary new water valve that reduces energy consumption. The L-pattern valve will be a more streamlined and cost-effective model able to facilitate the use of renewable water heating technologies, including solar energy.

The company now aims to be the 'first to market' globally with this new high quality thermostatic mixing valve technology that is more installation friendly and can be designed with fewer components.

► **More information:** [07 3224 2007, 07 3225 1005](#)





Robert Clark



Neville Roach



Barney Glover



Ren Yi

Chief Defence Scientist

Professor Robert Clark is the new Chief Defence Scientist and head of the Defence Science and Technology Organisation. Professor Clark has held senior appointments within universities and research councils and has extensive experience in collaborating with industry, government and defence agencies within Australia and overseas. He currently holds several professorial and director appointments, including director of the Australian Research Council Centre of Excellence for Quantum Computer Technology within the University of New South Wales. Recently, Professor Clark won the Eureka Prize for Leadership in Science for his pioneering role in making Australia a world leader in nanotechnology and quantum computing.

Antarctic departure

After a decade of guiding Australia's science program in Antarctica, Chief Scientist **Michael Stoddart**

Services CRC and its predecessor Smart Internet Technology CRC. He has had an extensive career in the IT and telecommunications industry in both technical and management roles, being the founding chairman of National ICT Australia Ltd (NICTA) and former chairman and chief executive officer of Fujitsu Australia. The Pearcey Medal is awarded for "outstanding lifetime achievement and contribution to the development and growth of the IT professions, research and industry".

Water head

Associate Professor of Hydrology and Remote Sensing, **Mohsin Hafeez**, is the new director of IC WATER at Charles Sturt University. His appointment follows the departure of founding director **Professor Shahbaz Khan** to a new role with the United Nations Educational, Scientific and Cultural Organisation (UNESCO) in Paris, France. IC WATER works on water problems by seeking local solutions which can

Labs Research facility and his team invented new circuit techniques widely adopted and deployed in mobile phones and mobile network infrastructure around the world;

- **Chemistry: Professor Gordon Wallace**, executive research director at the ARC Centre of Excellence for Electromaterials Science, University of Wollongong, established the world's first intelligent polymer research laboratory in NSW. He is a pioneer in nanobionics (which bridges nanotechnology and human biology), and has successfully used electrical stimulation to significantly enhance growth from nerve cells;
- **Plant and Animal Sciences: Dr Peter Kirkland**, head of the Virology Laboratory at the Department of Primary Industries' Elizabeth Macarthur Agriculture Institute. Her expert response to the 2007 equine influenza outbreak helped eradicate the disease in record time;



Mohsin Hafeez



Diane Gibson



Martin Green



Vena Sahajwalla



Chris Nicol



Philip Hogg

has left the Australian Antarctic Division. Professor Stoddart joined the Division in 1998 after an academic career in Scotland and the United Kingdom, before his appointment as Professor of Zoology at the University of Tasmania in 1985 and Deputy Vice-Chancellor at the University of New England in 1993.

Ageing expert

Professor Diane Gibson is the University of Canberra's new dean of health. She has research expertise in a range of areas relating to ageing and aged care, and is currently working on two large National Health and Medical Research Council funded projects on care pathways for older people, with a particular focus on people with dementia. She is a former senior executive and head of welfare and housing at the Australian Institute of Health and Welfare and has worked at ANU, Griffith University and the University of Queensland.

Darwin VC

Professor Barney Glover has been appointed the new Vice-Chancellor of Charles Darwin University. Currently a Deputy Vice-Chancellor at the University of Newcastle, Professor Glover will commence in February 2009, taking over the role from **Professor Helen Garnett** who retires from this position at the end of the year. Before relocating to Newcastle in 2006, Professor Glover held several positions at Perth's Curtin University of Technology.

Smart achiever

The 2008 Pearcey Medal has been awarded to **Neville Roach**, chairman of the newly established Smart

be applied globally.

Research manager

University of Southern Queensland academic **Dr Ren Yi** has been elected as one of only three executive members of the Australasian Research Management Society (ARMS). Dr Yi is the director of the University's Office of Research and Higher Degrees. Established in 1998, ARMS is the only professional body in the Asia-Pacific region dedicated to the development of research managers and administrators and the promotion of the profession of research management.

NSW stars

Professor Martin Green, solar energy expert and the executive research director at the ARC Centre of Excellence for Photovoltaics at the University of NSW, has been named 2008 NSW Scientist of the Year. Professor Green also won the Environment, Water and Climate Change Sciences Category of the NSW science awards. Other category winners are:

- **Engineering Sciences: Professor Veena Sahajwalla**, director at the Centre for Sustainable Materials Research and Technology at the University of NSW, has invented an environmentally-friendly technology for the recycling of waste plastics in Electric Arc Furnace steelmaking demonstrating that coke and coal used in the production of steel can be replaced by plastics used in shopping bags and bottles;
- **Computer Sciences: Dr Chris Nicol**, chief technology officer at National ICT Australia (NICTA), established the first Asia-Pacific Bell

- **Biomedical Sciences: Professor Philip Hogg**, NHMRC's senior principal research fellow and professor of vascular research, University of NSW, has invented a class of cancer drugs that starve tumours of their blood supply by inactivating the cells that make the blood vessels in tumours;
- **Physics and Astronomy: Professor Benjamin Eggleton**, director of the ARC Centre of Excellence for Ultrahigh-bandwidth Devices for Optical Systems, University of Sydney, is a world leading researcher and pioneer in optical physics and photonics. His work includes efforts to increase Internet speeds by developing a photonic chip using light, replacing the need for routers that slow data transmission;
- **Mathematical Sciences: Professor Matthew Wand**, research professor in statistics, University of Wollongong, has focused on the development of statistical methods to assist public health and medical researchers, and has pioneered the use of "smoothing techniques" to account statistically for random variations in data.

NeuroDiscovery CEO

NeuroDiscovery Ltd has appointed **Dr Chris Moyses** as group chief executive officer replacing **Dr Iain Chessell**, who will remain on the company's board and become a non-executive director. Dr Moyses had earlier joined the company's board. He has degrees in physiology and medicine from Oxford and Cambridge Universities and has worked in various pharmaceutical companies, most recently as chief medical officer of Argenta Discovery

Drain Tracking

Researchers from **The Australian National University** (ANU) and **Geoscience Australia** have finalised a new version of their **GEODATA 9 Second Digital Elevation Model** (DEM-9S). The new data will contribute significantly to water accounting, catchment management, modelling the impacts of climate change projections and a broad range of other applications.

Version 3 marks the culmination of more than a decade of work, providing a grid of ground-level elevation points covering the whole of Australia, with a grid spacing of nine seconds in longitude and latitude, or roughly every 250 metres.

Professor Michael Hutchinson from ANU says "the core data underpinning the new database include revised versions of elevation points, streamlines, cliff lines and water-bodies; trigonometric points from the National Geodetic Database; and, additional elevation, streamline and sink point data digitised from source material."

The procedure also incorporates an improved representation of streamlines, lakes, cliff lines and the coastline, Professors Hutchinson says.

The new database also includes a corresponding Flow Direction Grid (D8-9S) describing principal directions of surface drainage across the whole of Australia. According to **Phil Tickle** from Geoscience Australia, the new data show only around 50% of Australia's drainage basins actually flow to the sea.

► **More information:** Michael Hutchinson, 02 6125 4783; www.ga.gov.au.

China solar partners

Genuinely affordable solar power technology could soon grace rooftops from Sydney to Shanghai thanks to a new partnership between Australian, American and Chinese researchers. Scientists from the **Australian National University** (ANU), a Silicon Valley company with strong Australian connections, called **Chromasun**, and **Tianjin University** in China will create roof-mounted solar trough concentrator systems that are more cost-effective and efficient than previous models.

The Australian arm of the collaboration is being funded with \$1.8 million by the **Australian Government** as part of the Asia Pacific Partnership (APP) on Clean Development and Climate. The Australian contribution will be led by **Professor Andrew Blakers** and **Dr Vernie Everett** from the **Centre for Sustainable Energy Systems** at ANU.

The joint project will involve extended exchanges of staff and research students between Tianjin University, Chromasun and ANU. In addition to sharing in research and development, the project partners will also be identifying market opportunities in China, other APP nations, and countries where the cost of more expensive forms of solar-power technology presents a barrier to adoption.

► **More information:** Igor Skryabin, 0414 721 434

Presidential alliance

Prime Minister **Kevin Rudd** has signed a Memorandum of Understanding (MOU) with the **Clinton Climate Initiative** of the **William J. Clinton Foundation** to collaborate in:

- deploying carbon capture and storage technology to large scale projects;
- examining policies to encourage large scale solar power generation in Australia;
- designing collaborative policies in conjunction with large cities and

other organisations on improving energy efficiency.

The William J. Clinton Foundation will work with the **Australian Government** through **Australia's Global Carbon Capture and Storage (CCS) Initiative**.

The Clinton Climate Initiative is already working with a number of Australian states in developing solar power facilities and has expertise in working with large cities and other organizations on improving energy efficiency. It will support the Australian Government in drafting a national energy efficiency strategy and in exploring opportunities for collaboration in the energy efficiency area across government, business and the community.

► **More information:** www.pm.gov.au

Timber saviours

Prime Minister **Kevin Rudd** has ratified the **UN International Tropical Timber Agreement** (ITTA), the principal global agreement designed to achieve the sustainable management of tropical forests.

Mr Rudd says that with 47% of the global forest estate in tropical regions, Australia has significant interests in the sustainable management of these forests, which is critical in tackling climate change, as deforestation contributes 20 per cent of global greenhouse gas emissions.

By ratifying the ITTA Australia is now better positioned to play a leadership role in combating illegal logging activities, and working in partnership with the international community to ensure that forests around the world are properly managed, Mr Rudd says. "This year Australia signed forest carbon partnership agreements with Indonesia and Papua New Guinea. Ratification of this agreement reinforces Australia's other initiatives in forest management, such as Australian objectives to assist Asia-Pacific countries build capacity to sustainably manage their forests," Mr Rudd says.

► **More information:** www.pm.gov.au/media

Aussie battlers swamped

The **CRC for Australian Weed Management** (Weed CRC) has launched a new series of weed management guides for Australian landholders and bushland managers. Invasive weed species continue to expand in cleared country and bushland remnants threatening the survival of native plants and animals, says Weeds CRC scientist and president of the **Council of Australasian Weed Societies** **Dr John Virtue**. "Much of the current focus is on establishing biodiversity corridors to enable native plants and animals to migrate in the future, to more suitable climates. Yet this won't happen if exotic weeds destroy the remnants of natural habitat we still have left. We need to actively manage weed threats now as a fundamental part of our response to climate change," he says.

According to Dr Virtue, the weeds chosen for the new management guides are high impact environmental weeds, seen as a priority by a significant number of regional bodies. The perennial grasses, shrubs and



photo: BirdLife International/Marco Lambertini

African boxthorn (Lycium ferocissimum) is an intricately branched shrub with large thorns.



photo: Lenka Miles and Max Campbell

vines all have the capacity to out-compete our native plants and deny food and shelter to our native animals. Some also pose fire risks.

The eight species covered in the series are:

1. *Lycium ferocissimum* (African boxthorn)
2. *Hyparrhenia hirta* (Coolatai grass)
3. *Cenchrus ciliaris* (buffel grass)
4. *Vinca major* (periwinkle)
5. *Erica lusitanica* and other *Erica* spp. (Spanish heath etc.)
6. *Cytisus scoparius*, *Genista monspessulana* and related species (brooms)
7. *Macfadyena unguis-cati* (cat's claw creeper)
8. *Pennisetum* spp. (some foxtails and fountain grasses)

► **More information:** John Virtue, 0428 112 943; The management guide can be downloaded at: www.weedscrc.org.au/publications/weed_man_guides.html#biodiversity

All piped to Darwin

Ichthys Joint Venture operator **INPEX Browse Ltd.** (INPEX) has announced Blaydin Point on Middle Arm Peninsula in Darwin as the location for its proposed LNG processing facility.

More than US\$20 billion in capital expenditure will be required to construct the offshore and onshore facilities required to produce gas and condensate offshore and deliver gas from the Ichthys Field off the coast of Western Australia to the Blaydin Point LNG processing facility via an 850 kilometre pipeline.

The reserve volume of the Ichthys Field is estimated to be 12.8 trillion cubic feet of natural gas and 527 million barrels of condensate. Initially the project is expected to produce more than 8 million tonnes of LNG, 1.6 million tonnes of LPG per annum and 100,000 barrels of condensate per day. These forecasted production volumes represent about 50% of current Australian annual LNG production, about 60% of current Australian LPG production and about 20% of current Australian crude oil production respectively. It is anticipated that the Project will be in operation for at least 40 years.

Ichthys Joint Venture is a partnership between the Japanese company INPEX and the French oil major, **Total**.

► **More information:** Sean Kildare, 08 9223 8483

Reading the waves

Over the past 45 years there has been an increase in the frequency of weather events which led to large waves being generated off Australia's southern coast, according to a new report *Variability and trends in the Australian wave climate and consequent coastal vulnerability*.

The research also found strong correlations between wave power in some Australian regions and changes in climate drivers such as the length and strength of the tropical monsoon season in the north. The report also outlined a method for identifying which parts of our coast are likely to be more susceptible to the impacts of large and powerful waves.

Jointly funded by the **Department of Climate Change** and the **CSIRO**, the \$800,000 research project investigated climatic conditions which could lead to changes in waves on Australia's coast, including extreme waves of around three metres or more.

Releasing the report, the Minister for Climate Change and Water, **Senator Wong**, says it is an important contribution to a broader assessment currently being undertaken by the Government of the vulnerability of Australia's coastal zones to climate change.

This assessment will provide critical information for coastal zone

managers to help them plan for the potential impacts of climate change.

► **More information:** www.environment.gov.au/minister/wong

Uranium to Russia?

The **Federal Parliament's Treaties Committee** has completed a report on an agreement with the **Russian Federation** on cooperation in the use of nuclear energy for peaceful purposes, which would, for the first time, allow Australia to provide uranium for use in Russia's nuclear power plants. The committee, however, recommends that ratification of the agreement is subject to 8 conditions, which include:

- Russia's civilian nuclear and military nuclear facilities are completed and independently verified;
- **International Atomic Energy Agency** (IAEA) inspections are implemented for Russian facilities that will handle Australian Obligated Nuclear Materials;
- the government is satisfied that Russia is complying with its obligations under the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) and is not subsequently abandoning this treaty or other nuclear treaties; and
- the **Australian Government** discusses with the United States, United Kingdom, European Union, Canada and Japan, whether the problems of the past in relation to Russian nuclear material being stolen, have now been addressed satisfactorily.

The committee has also reiterated a previous committee recommendation that the Australian Government lobbies the IAEA and the five declared nuclear weapons states under the NPT to make the safeguarding of all conversion facilities mandatory. The Committee also considered that Australian efforts to strengthen the resourcing of the IAEA should be continued.

► **More information:** Kelvin Thomson 03 9350 5777

Deep drill

Petratherm Limited and its joint venture partners **Beach Petroleum** and **TRUenergy** have secured a 2,000 HP Drilling Rig from **Weatherford Drilling International Australia Pty Ltd** to complete the first of two deep wells at its Geothermal Paralana Project in South Australia. Petratherm expects to spud the Paralana 2 well (up to 4 kms deep) in February 2009 and is planning to spud the Paralana 3 well in early 2010.

Welcoming the announcement, Minister for Resources and Energy **Martin Ferguson** says Petratherm, like other geothermal energy companies, will be eligible to apply for assistance under the \$50 million Geothermal Drilling Program. With first-round applications to open later this year, the program will provide grants of up to \$7 million on a matching funding basis to support the high cost of drilling and help finance proof-of-concept projects.

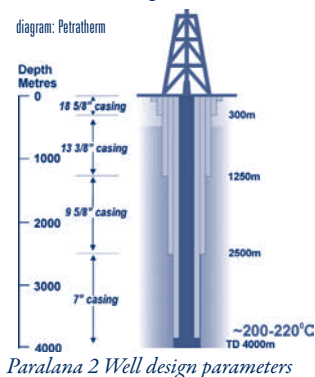
► **More information:** www.petratherm.com.au; Michael Bradley (Minister Ferguson's office) 0420 371 744

photo: Petratherm



The Weatherford Rig # 828 (Le Tourneau Technologies Inc.) is being built in Dubai and expected to be delivered to Australia in January 2009.

Capable of drilling very deep wells it will be available to other Australian geothermal energy developers to accelerate development across the geothermal sector.



No cable wanted

Wireless broadband technology subscriptions saw almost 90% growth in six months according to figures released by the **Australian Bureau of Statistics** (ABS), accounting for 14% (809,000) of all Australian broadband subscriptions at the end of June 2008, up from 433,000 in the December quarter 2007.

As at June 2008, Australia had a total of 7.2 million active internet subscribers; just under 80% of these subscribers had broadband connections.

Broadband subscribers continue to choose faster connections with download connections of 1.5 Megabits per second or greater increasing to 3.1 million or 43% of all subscribers compared to 2.5 million (36%) at the end of December 2007.

► [More information: www.abs.gov.au](http://www.abs.gov.au)

Terms of access

The **Australian Competition and Consumer Commission** has issued a draft determination specifying model non-price terms and conditions for core telecommunications access services.

Although non-binding, they provide guidance as to the ACCC's views regarding fair terms and conditions of access. The core telecommunication services are the main access services which competitors need in order to compete with **Telstra** for a variety of retail services. Consequently, the terms of access to these services can act to the long-term benefit of Australian consumers of various telecommunications services, including high-speed broadband services.

The proposed model terms focus on areas where service providers have had difficulty in negotiating mutually agreeable terms. These include matters that have been recently notified to the ACCC for arbitration. According to ACCC chairman, **Graeme Samuel**, the ACCC has attempted to strike a balance between the legitimate business interests of access providers and the rights of access seekers to use the declared services."

► [More information: www.accc.gov.au/content/index.phtml/itemId/843401](http://www.accc.gov.au/content/index.phtml/itemId/843401)

Indigenous connections

The **Australian Government** has signed a Memorandum of Understanding with **Microsoft Australia** to create valuable employment opportunities for indigenous Australians as part of its Corporate Leaders for Indigenous Employment Project.

According to the Minister for Employment Participation, **Brendan O'Connor**, 95 Australian companies have now committed to creating employment, career pathways and business opportunities for indigenous Australians. He says that Microsoft has already developed a partnership with the **Yarnteen Aboriginal and Torres Strait Islander Corporation** to provide computer access and connectivity to more than 50 Community Development Employment Project providers across Australia.

► [More information: mediacentre.dewr.gov.au/mediacentre/AllReleases/](http://mediacentre.dewr.gov.au/mediacentre/AllReleases/)

Putting it to the test

A recent international cyber security exercise, Cyber Storm II, allowed the

governments and business sectors of **Australia, Canada, New Zealand, the United Kingdom** and the **United States** to put their e-security arrangements to the test.

The exercise proved that Australia's response arrangements to cyber-attack are sound, but just as importantly, it demonstrated areas where improvements can be made. This is the conclusion of Attorney-General **Robert McClelland**, who released a detailed report outlining Australia's involvement, which included government agencies, state and territory governments and the largest contingent of private sector organisations ever involved in such an exercise.

Cyber Storm II was held in March in conjunction with the **US Department of Homeland Security National Cyber Security Division**, the UK's **Centre for the Protection of National Infrastructure, Public Safety and Emergency Preparedness Canada** and New Zealand's **Centre for Critical Infrastructure Protection**.

► [More information: Adam Sims, 0419 480 224](mailto:adam.sims@defence.gov.au)

Community loss

The **Community Broadcasting Association of Australia** (CBAA) is objecting against plans by the **Australian Communications and Media Authority** (ACMA) to make channels available for **ABC NewsRadio** in four regional areas - Geelong, Bendigo and Colac in Victoria and Townsville in Queensland - with community radio stations being told they have to move frequency and broadcast at lower power.

CBAA's acting general manager **Craig Liddell** says: "Changes should only happen after a full review of existing and proposed services". Mr Liddell says that changing frequencies is impacting heavily on a station's ability to raise revenue and they should be compensated. "There are the technical and human resources required, the costs of re-branding, and it impacts heavily on audiences..."

"Both the diversity of services for listeners in these areas and the opportunity to participate in broadcasting will be affected by this move", says CBAA president **Deborah Welch**. More than 25% of the population listens to community radio each week, she says.

► [More information: www.cbaa.org.au/](http://www.cbaa.org.au/)

How green is your garden?

A new interactive web portal, *Your Development*, will provide urban developers with valuable information, including fact sheets and national and international case studies, on the creation of greener neighbourhoods.

Produced in partnership with the **CSIRO**, the web portal is a unique opportunity for the urban development industry to share best practice ideas about the creation of more sustainable neighbourhoods and get access to information on topics ranging from water and energy efficiency to climate change adaptation and site ecology.

According to Environment Minister **Peter Garrett**, better planning of our neighbourhoods can significantly reduce their overall environmental impact. "Your Development will help ensure that cost-effective energy and water saving designs are built-in from the outset," he says.

The website contains more than 60 fact sheets available as free downloads, providing information on all stages of the development process, from planning and design through to construction.

► [More information: www.environment.gov.au](http://www.environment.gov.au)

Garnaut review: the final report



The final report of the *Climate Change Review* concludes that the costs of Australia playing its proportionate part in an effective global effort are manageable. “The review has recommended a necessary and sufficient mitigation policy package that will facilitate the effective, efficient and equitable transformation for Australia to a low-emissions economy,” says **Professor Ross Garnaut**. Australia has most to lose from inaction and “should throw its full weight behind securing an effective international agreement from 2013.” To be effective it must include all the major economies, he says.

“It is crucial that an agreement is practical. There is no value in an agreement that is not backed up by substance,” says Professor Garnaut, proposing that Australia should reduce the level of its emissions in year 2000 by 10% by 2020 and 80% by 2050, if there is international agreement on a limit of 550 parts per million (ppm) atmospheric CO₂. He believes a target of 550ppm is a practical arrangement and will have reasonable chances. Australia should work, however, towards a more ambitious agreement on 450ppm, and in this case reduce its emissions 25% below 2000 levels by 2020, and 90% below 2000 levels by 2050.

The overall cost to the Australian economy, under both the 450ppm and 550ppm scenarios, would be in the order of 0.1-0.2 per cent of annual economic growth to 2020.

In the absence of an internationally agreed target, Australia should cut emissions by 60% by 2050, says the report.

The report also recommends the establishment of an emissions trading system (ETS) at the earliest possible date, in 2010. Specific recommendations for the ETS design include:

- establishment of an independent carbon bank with all the necessary powers to oversee the long-term stability of the scheme;

- implementation of a transition period from scheme commencement in 2010 to the conclusion of the Kyoto period (end 2012) involving fixed price permits;
- payments to trade-exposed, emissions-intensive industries (TEEIs) designed to address the failure of our trading partners to adopt similar policies to constrain emissions, rather than to compensate for Australia having an emissions trading scheme;
- all permits to be auctioned with about half the resulting revenue going into support households in the bottom half of the income distribution, and about 20 per cent for research, development and commercialisation to support low-emissions technologies;
- no ceilings or floors on the price of permits (beyond the transition period);
- intertemporal use of permits through ‘hoarding’ and ‘lending’ from 2013 onwards;
- a judicious and calibrated approach to linking with international schemes;
- strict compliance with appropriately punitive penalties and ‘make good’ provisions;
- scheme coverage that is as broad as possible, within practical constraints;
- the existing, non-indexed shortfall penalty in the Mandatory Renewable Energy Target to remain unchanged in the expanded scheme, as a way of phasing out the MRET over time.

► **More information:** www.garnautreport.org.au

Scientists appeal to the PM

In an open letter, written prior to the release of the final report of the *Garnaut Review*, some of Australia’s leading climate scientists are urging Prime Minister **Kevin Rudd** to adopt an emission reduction target for Australia of 25% below 1990 levels by 2020.

This target would be a minimum requirement for Australia’s contribution to an effective global climate agreement that would aim to limit atmospheric CO₂ levels to an equivalent concentration of no more than 450 parts per million (ppm).

“Failure of the world to act now will leave Australians with a legacy of economic, environmental, social and health costs that will dwarf the scale of national investment required to address this fundamental problem,” says the letter signed by leading researchers from the nation’s top university and research institutions. “There is no time to lose.”

According to the letter, this target would be consistent with the 2007 *Intergovernmental Panel on Climate Change* (IPCC) report, compiled by hundreds of climate scientists. The report had concluded that Earth’s climate is warming rapidly with at least 90% certainty that this is mainly due to human activities.

It further had concluded that global greenhouse gas emissions needed to fall by at least half below their 1990 levels by the year 2050 to avoid catastrophic effects on climate, water supplies, food security, habitat loss and species extinctions. To limit average global temperature rises to below 2°C, global emissions had to peak and decline before 2015.

In December, the Minister for Climate Change, **Penny Wong**, will join her counterparts in Poland to discuss national and international emission targets in the run-up to negotiating the successor to the Kyoto Protocol.

The letter’s signatories say that the urgent goal now is to limit global warming to no more than 2°C above the pre-industrial temperature, a limit already formally adopted by the European Union, South Africa and a number of other nations.

“Other nations have taken action and have committed to further action,” they say. “We urge you to act decisively to maintain global momentum and to protect Australia’s future.”

The letter notes that according to the interim report of the *Garnaut Review* an emission reduction target for Australia of 25% below 1990 levels by 2020, “would be an equitable contribution to the international effort required to achieving this outcome”.

The letter’s signatories have played important roles in past IPCC reports, as either lead or contributing authors, or section reviewers. All the current **Australian Research Council Federation Fellows** in climate science and the directors of key university climate change research centres are included on the signature list.

It also includes the two Australian climate scientists to have occupied the most senior roles in the **World Climate Research Programme** (WCRP), namely **Dr John Church**, immediate past chair of the **Joint Scientific Committee** of the WCRP and **Professor Ann Henderson-Sellers**, immediate past executive director, WCRP.

► **More information:** www.science.unsw.edu.au/ruddletter

