

# Summary of Successful Linkage - Projects Proposals for Funding to Commence in 2010 by State and Organisation

## New South Wales

### University of Wollongong

LP100100672 Prof David J Ayre, Mr Andrew Denham

**Approved Project Title** Genetic Rescue of Australia's Arid Zone Plants

2010	\$110,000.00
2011	\$110,000.00
2012	\$110,000.00
Primary FoR	0602 ECOLOGY
APAI	1

#### Partner Organisations

Lower Murray Darling CMA, Murray Catchment Management Authority, NSW Department of Environment and Climate Change (DECC), Sunraysia Nurseries Pty Ltd

**Administering Organisation** University of Wollongong

#### Project Summary

Many Australian arid zone plant species have been severely damaged by grazing, loss of pollinators and other impacts and cannot survive without urgent intervention. Some exist as small fragmented populations with too little genetic variation to reproduce or adapt to further environmental change. We propose to combine surveys of genetic (DNA) diversity and the reproductive status of populations in order to identify species that could be saved by a process of 'genetic rescue'. Genetic rescue will involve experimental pollinations to produce highly fit seedlings and later transplanting of these seedlings to augment genetically deficient populations.

LP100100440 Prof Shi Xue Dou, Dr Josip Horvat, Mr Xun Xu, Dr Jeffrey W Moscrop

**Approved Project Title** Design, build and test a fault current limiter employing magnesium diboride (MgB2) superconducting coils

2010	\$195,000.00
2011	\$190,000.00
2012	\$195,000.00
Primary FoR	0906 ELECTRICAL AND ELECTRONIC ENGINEERING
APDI	Mr Xun Xu
APAI_IT	1

#### Partner Organisations

Zenergy Power Pty Ltd

**Administering Organisation** University of Wollongong

#### Project Summary

Recent occurrences of blackouts around the world caused immeasurable damage to electrical network hardware in the range of \$10M, however, the losses from an unavailable network are much more. The CIs and Zenergy Power Pty Ltd (formerly Australian Superconductors) have been developing saturated core fault current limiters (FCL) since 1999. The first saturated core fault current limiter employing the Australian's entity's technology was installed in California. The aim of this proposal is to extend this technology to demonstrate next generation FCL using a newly developed superconductor magnesium diboride (MgB2) wire which is cheaper and easier to manufacture than high temperature superconductors and the CIs' group hold strong IP on nano-scale chemically doped MgB2 wires.

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**LP100100236** Prof Buddhima N Indraratna, Prof Song-Ping Zhu, Dr Jan A Nemcik, Dr Shuqing Yang, Dr Winton J Gale  
**Approved Project Title** **Study of Coupled Water-Gas-Sediment (three-phase) Flows through Jointed and Stratified Rock**

2010	\$72,000.00
2011	\$53,338.00
2012	\$53,338.00
Primary FoR	0905 CIVIL ENGINEERING
APAI	2

**Partner Organisations**

Strata Control Technology (SCT) Pty Ltd (Wollongong)

**Administering Organisation** University of Wollongong

**Project Summary**

Coupled Water-Gas-Sediment Flows through Rock Joints project outcomes are expected to surpass the current knowledge on ground/slope stability and water inundation, enhance engineering solutions of the associated problems and provide vital improvements to public safety. The research team will publish the research outcomes through peer-reviewed journals and conferences, nationally and internationally, raising Australia's scientific profile within the civil engineering and mining community. The Australasian Institute of Mining and Metallurgy and Institution of Engineers seminars will be organised to promote discussion with the practitioners while the Australian geotechnical community will gain expertise through the PhD program.

**LP100100618** A/Prof Kashem M Muttaqi, A/Prof Sarath Perera, Prof Darmawan Sutanto, Dr Philip P Ciufo, Mr Leith A Elder  
**Approved Project Title** **Integration of Solar, Wind and Storage Systems into Distribution Grids for Network Support**

2010	\$158,000.00
2011	\$126,000.00
2012	\$136,000.00
Primary FoR	0906 ELECTRICAL AND ELECTRONIC ENGINEERING
APAI_IT	2

**Partner Organisations**

Country Energy

**Administering Organisation** University of Wollongong

**Project Summary**

This project will contribute to the development and utilisation of renewable energy technologies for a sustainable future and facilitate their integration into electricity grids for network support. Innovative methodologies and technologies will be developed to reduce network problems associated with the integration of a large number of small-scale renewable energy resources into distribution grids. This project will also develop assessment tools to examine the impact of renewable energy penetration on power quality aspects, network stability and protection performance. This research will provide remedies for potential problems introduced by their integration and improve voltage support in the electricity networks.

## Summary of Successful Linkage - Projects Proposals for Funding to Commence in 2010 by State and Organisation

**LP100100417** Dr Peter M Siminski, Prof Simon P Ville  
**Approved Project Title** **The long term causal effects of Vietnam War era conscription on economic and social outcomes for Australian conscripts**

2010 \$27,000.00  
 2011 \$30,000.00  
 Primary FoR 1402 APPLIED ECONOMICS

**Partner Organisations**

Department of Veterans' Affairs

**Administering Organisation** University of Wollongong

**Project Summary**

The project will inform veterans' compensation, military and retirement income policies. A perennial policy issue is how best to re-integrate veterans into society. Our preliminary analysis suggests very different effects of conscription in Australia to the USA, particularly on employment. This may reflect different systems of benefits, which we will investigate. A greater understanding of the effects of conscription will also inform policy makers of the full cost to society of military service and participation in conflict. Since veterans are entitled to retirement pensions earlier than non-veterans, we also investigate the effects of benefit eligibility on employment outcomes amongst older men.

**LP100100549** Prof Trevor A Spedding, Dr Michael D Clements, Prof Amrik S Sohal, Dr Lisa J Daniel, Prof Patrick M Dawson

**Approved Project Title** **Technological innovation and change in supply chain integration**

2010 \$55,000.00  
 2011 \$53,338.00  
 2012 \$53,338.00  
 Primary FoR 1503 BUSINESS AND MANAGEMENT  
 APAI 2

**Partner Organisations**

Compdata Pty Ltd, LG Electronics Australia Ltd, TNT Australia Ltd

**Administering Organisation** University of Wollongong

**Project Summary**

In examining emerging technology that can transform the performance of Australian industry we address the following priority goals: better understanding the processes that will advance knowledge and facilitate the development of technological innovations; the potential application of Radio Frequency Identification (RFID) technologies across an entire supply chain; and the improved management of information in the storage, distribution, and delivery of products (smart information use). Improvement in the operational efficiency and performance of the supply chain will increase national wealth while minimising environmental impacts on the environment, for example, through the better utilisation of heavy freight carriers.

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**LP100100802** Dr Jia Z Wang, Prof Hua Kun Liu, Dr Konstantin K Konstantinov, Prof Zhaoxiang Wang

**Approved Project Title** Room Temperature Rechargeable Sulphur Batteries

2010 \$70,000.00

2011 \$58,000.00

2012 \$100,000.00

Primary FoR 0912 MATERIALS ENGINEERING

### **Partner Organisations**

DLG Battery Co. Ltd., Nipress Tbk, PT

**Administering Organisation** University of Wollongong

### **Project Summary**

The project will lead to the development of low cost sulphur rechargeable batteries for electric vehicles and hybrid electric vehicles and will contribute to the national priority goal of reducing and capturing emissions in transport to improve our environment. The project will take the incentive in establishing a leading national position in the development of low cost energy storage technology. The Partner Organisation, Nipress, has a close connection to Australia. The company has imported raw materials (metal lead, 8000 tons) from Australia every year. The success of sulphur batteries technology will increase the opportunity of Nipress using more Australian raw materials.