

2012 ACARP EXCELLENCE AWARDS

The strong partnership between industry and researchers has been critical to ACARP's success over the past 20 years, according to Australian Coal Research Chairman Rob Neale from New Hope.

Speaking at the 2012 ACARP Excellence Awards at the Gallery of Modern Art on 20 September, Rob said the awards recognised the enormous and valuable contribution provided by researchers.

"ACARP is the world's most successful coal research program and continues to work thanks to more than 200 industry representatives who volunteer their time as committee members and project monitors," he said.

Since its inception we have committed around \$227 million to more than 1,200 research projects across the full range of challenges facing the industry.

"There is no other example of a collaborative, industry funded program that has 100 per cent support from its constituency and produces world-class research that solves real problems. It's relevant, it's focused, it's cost-effective and its rapid."

Rob Neale, Chair ACARP Board and Research Committee Co-chairman Tony Egan from Xstrata Coal presented awards to:

- Jim Sandford and Agi Burra, Xstrata Coal
- David Humphreys and Julian Greenwood, SkillPro Services; David Proud and Greg Collecutt, BMT WBM
- Ross McAree, UQ/CRCMining
- Mike O'Brien, CSIRO
- Philip Bennett, ALS Coal.

Rob Neale was also recognised for his contribution to ACARP. Tony Egan said the award recognised Rob's vision and leadership in his role as chairman over the past six years.

"The strength and guidance you have provided has led to ACARP being more cohesive and much better focused."

JIM SANDFORD AND AGI BURRA

- Provision of excellence in leading development of the Open Cut Fugitive Emissions Guidelines
- Start: July 2010
Complete: December 2011
ACARP funding: \$123,390

The Australian coal industry has developed a rigorous method for estimating greenhouse gas emissions from open cut coal mines and the accompanying guidelines have been referenced by the federal government in the National Greenhouse and Energy Reporting (NGER) Act. The open cut guidelines now have a step-by-step process that shows how to test for data sufficiency and provides a simplified uncertainty calculation.

Tony Egan said this award recognised the enormous contribution Jim and Agi had made in pulling together a scientific and practical response for the measurement of fugitive emissions.

"You both went well beyond the call of duty, and your work will probably save the industry more than ACARP has cost over the past 20 years," he said.

Jim Sandford said it had been a challenging process that required significant external consultation with Commonwealth bureaucrats, lawyers and auditors.

"People had to have confidence in our numbers and the process had to withstand a legal and audit review. We used science and research as the basis of our work and the protocols enabled others to verify that the outcomes are acceptable to within a prescribed tolerance," he said.

DAVID HUMPHREYS, JULIAN GREENWOOD, DAVID PROUD & GREG COLLECUTT

- Achieving scientific and technical excellence through project C14027 Active Explosion Barrier
- Start: March 2005
Complete: December 2012
ACARP funding: \$1,652,000

Researchers from SkillPro and BMT WMB have developed a prototype water-based active explosion barrier that has proven it can suppress the flame front of an underground mine explosion, limit the extent of the explosion as close as possible to the working face and minimise loss of life.

The prototype has a flame detector inbye of the explosion barrier, a pressurised vessel to store water, and two metal spray bars with around 180 nozzles. When the flame is detected, an electric signal opens a valve at the bottom of the pressurised vessel releasing up to 240 litres of water in quarter of a second. A fine water spray is injected at great speed into the roadway to stop combustion and suppress the flame front.

Tony Egan said the decision regarding the award was made before the team had completed its very successful testing program at Kloppersbos in South Africa.

“Thankfully due to your tireless efforts and brilliance, the high pressure water injection suppressed the coal dust explosion. The world, not only Australia, could eventually have a safer underground coal industry as a consequence,” he said.

SkillPro Principal Consultant David Humphreys said it was extremely gratifying and satisfying for the team that its peers had seen fit to make the award.

“It was a great day in South Africa when we sat in the car and I took the call and we were told we were getting the award. We hadn’t got our results yet but we were being given the award. The pressure was really on, but it lifted all of us. The same day we performed our first barrier trials. We knew the test was going to be over in less than five seconds; it was either going to work or not ... and it did! You can imagine how we felt – we were blown away. To have achieved a successful suppression at the first attempt was a testament to the effort that had been put in by the whole team,” he said.

BMT WBM Associate David Proud said the award recognised his team’s expertise in computational fluid dynamics and its long-term R&D effort.

“It was great to get recognition from the industry for the work that we’d put in over several years. The simulations required the development of code representing a large number of physical and chemical processes. Undoubtedly this was one of the most complex computation modelling jobs ever done by the team, and it was a crucial part of the whole project,” he said.

“We do hope that the 2013 project will bear fruit as well.”

ROSS MCAREE

- Provision of excellence in advancing mine automation through project C16031 SLAP
- Start: June 2007
Complete: Ongoing
ACARP funding: \$4,514,440

An 800-tonne electric P&H 2100BLE shovel can now automatically swing a loaded bucket over a haul truck, determine an optimal dump point in the tray, release the load without spillage and return the bucket to the digging face. On completion of the automated cycle, the shovel operator can seamlessly retake control in preparation for the next dig.

Automation of the swing, dump and return phases of the machine cycle have reduced cycle times and improved efficiency by allowing faster swings, minimising spillage due to poor bucket placement at dump, and significantly reduce the likelihood of bucket-truck collisions.

Ross said one of the key technical challenges had been to determine the position and orientation of the

truck in relation to the shovel within a failure rate determined by tolerable risk levels identified by the industry.

“The system is allowed to have one failure in every six weeks of continuous operation – the risk process was determined with the steering committee around the AS61508 functional safety lifecycle. The recent work we’ve done has been to achieve that target and reduce swing time by 15 per cent and machine duty load by 20 per cent. It’s been a long journey for us to get there,” he said.

“By March 2013 we’re hoping to have technology installed at a mine site and, by July, we’re hoping to have demonstrated that it meets its requirements on site.”

“This award recognises the commitment and passion Ross has shown over many years in advancing this technologically challenging area for the mining industry,” Tony Egan said.

Ross said that while he was honoured to receive the award, it really acknowledged the commitment and contributions of his many colleagues from the School of Mechanical and Mining Engineering at the University of Queensland, CRCMining, P&H Mining Equipment and the Australian coal industry. These included Anthony Reid, Kevin Austin, Zane Smith, Brian Hoppe, Brian Hargrave, Andrew Denman, Alex Ridley, Tyson Phillips, Lachlan Palmer, Roger Marley, Ben Dart, Adrian Taylor and the ACARP SLAP steering committee.

MIKE O’BRIEN

- Provision of excellence in coal technology

Research Consultant Mike O’Brien has been working on research projects for ACARP since its inception, from classifications to dense medium cyclone operations.

“This award is made to publically recognise your long-term efforts that have contributed to Australian having the best coal processing technology in the world,” Tony Egan said.

“It is a good measure of the excellence achieved and the regard you are held in by the close-knit coal preparation community.”

Mike said he was humbled to receive the award. “I don’t think I’ve done any more than anybody else.

It’s been a big team effort and I happened to be leading those teams doing the work,” he said.

“There are people doing a lot of good work, so I was humbled and honoured to be considered, let alone win it.”

Mike is currently working on three ACARP projects:

- Monitoring and prediction of catastrophic, multi-scoped screen failures;
- Centrifugal dewatering properties of Australian coals;
- Effect of dynamic changes in medium quality of coal processing.

PHILIP BENNETT

- Provision of excellence and commitment to determining the quality of Australian coals

ALS Coal Research Manager Philip Bennett’s award is the culmination of a career-long passion for applied research and his contribution to improving the knowledge of Australian coals.

Tony Egan said Philip had also played a significant role in helping develop the market for Australian PCI coals.

Philip acknowledged the contribution of the entire ALS Coal Technology team.

“This award is the result of the group’s team effort and ALS Coal’s backing of research programs for the practical application of coal science,” he said.

In addition to his research work at ALS Coal, Philip is also involved in mentoring and coaching young consultants and researchers, and is a strong advocate for the company’s graduate development program.