

## Case Study Energy Pipelines Cooperative Research Centre



Assisting in the delivery of safer, more efficient and reliable pipelines to meet Australia's growing energy needs.

### PROJECT OUTCOME

Provide the Australian energy pipeline industry with the technology necessary to extend the life of the existing natural gas transmission network, and to build better, cheaper and safer networks necessary to support increased demand for energy.

### WHO'S INVOLVED?

The Energy Pipelines Cooperative Research Centre (EPCRC) is a collaboration involving the Australian Pipelines and Gas Association Research and Standards Committee (APGA RSC), the University of Adelaide, Deakin University, the Royal Melbourne Institute of Technology and the University of Wollongong.

The EPCRC is supported by the Commonwealth of Australia under the Cooperative Research Centres Program.

APGA RSC consists of approximately 60 companies from across the pipeline supply chain including pipeline owners, designers, constructors, pipe suppliers, contractors and consultants.

### WHAT'S THE ISSUE?

Pipelines are technologically advanced and complex systems required to work continuously, efficiently and safely. Pipeline failure or outage can have significant, far-reaching consequences including impacting the security of supply for export and domestic markets and consequently the Australian economy.

The existing pipeline network was largely constructed in the 1970s and 1980s with large portions nearing end of life. Combined with a huge increase in the demand for domestic energy and export gas, urban sprawl and a changing pipeline ownership landscape, the pressures on the pipeline network have never been greater.

### WHAT WERE THE OBJECTIVES?

The objectives of the EPCRC are to:

- ▶ Provide for the more efficient use of materials for energy pipelines;
- ▶ Extend the safe operating life of existing natural gas pipelines;
- ▶ Facilitate construction of new pipelines for transmission of gas and emerging energy cycle fluids; and
- ▶ Contribute to the ongoing safe operation of these pipelines



### WHAT MADE THIS A SUCCESSFUL COLLABORATION?

The collaboration received strong industry support and project teams were made up of actively engaged industry personnel and researchers. This close collaboration from proposal development through to new knowledge / solution implementation ensured the outcomes were relevant and useful. Identified and agreed path to impact built into the project process has proved to be a critical success factor and without this step, projects did not commence.

### HOW HAS INTELLECTUAL PROPERTY BEEN HANDLED AMONG THE GROUP?

The EPCRC retains full ownership of all Intellectual Property [IP] developed but provides a licence to the APGA RSC member companies to use IP in their own business. This approach to IP was agreed by all collaboration partners in advance. This approach is not suitable for all CRCs.

### HOW IS THE RESEARCH CONDUCTED BY EPCRC REGULATED?

The Australian gas and petroleum pipeline industry is regulated and pipelines must fully comply with the Australian Standard 'AS2885 Pipelines: Gas and Liquid Petroleum' to be granted a licence to operate.

Consequently, the practical implementation of much of the EPCRC research is through the incorporation of the research outputs into this Standard.

### WHAT WAS THE OUTCOME?

The EPCRC has provided significant value to the Australian pipeline industry and has been recognised for its world-leading research into pipeline innovation and improved safety. Examples where EPCRC has provided significant value include:

- ▶ Contributed significantly to understanding fracture in pipelines and improvement in pipeline design. This is backed up by the development of software to assist with pipeline design in the area of fracture control.
- ▶ Established the National Facility for Pipeline Coating Assessment at Deakin University as an industry/research partnership. At this NATA accredited facility, companies can have selected coatings evaluated against the relevant Standards for onshore or offshore pipelines.
- ▶ Conducted research on exploring approaches that can be adopted by organisations to ensure long-term safety is built into the asset's design, that lessons are passed on through organisations and organisational related reasons why things go wrong are understood.

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#### ABOUT NATIONAL ENERGY RESOURCES AUSTRALIA

NERA is one of 6 national Industry Growth Centres established by the Australian Government to drive innovation, productivity and competitiveness in sectors of competitive strength and strategic priority for Australia.

NERA's role is to assist the energy resources industry manage cost structures and productivity, direct research to industry needs, deliver the future work skills required and promote proportionate fit for purpose regulation. NERA's goal is to maximise value to the Australian economy by having an energy resources industry which is globally competitive, sustainable, innovative and diverse.