The Australian Experience

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We Australians like to think of ourselves as unique: an island continent that is part of Asia, but with political, economic and social institutions modelled upon those of the United Kingdom, Europe and the United States. We have abundant mineral and energy resources, a highly educated population, stable political environment and progressive market economy. Our climate is harsh, unforgiving and our relatively small population clings to Australia's coastal fringes while a sparsely populated desert terrain stretches through the centre of the nation. Gas is transported great distances as Australia's gas fields are located far from our markets ensuring the development of highly efficient and innovative practices in long range, small diameter pipeline construction. As pipeliners our expertise lies in long distance, thin wall, high pressure, small-bore pipelines increasingly constructed of high-grade X70 and X80 steel.

Far from being "down-under", we see ourselves as very much on top! However, we also recognise that others have a very different perspective…

I'd like to extend my thanks to IPLOCA for the invitation to speak here today about the Australian experience, and for hosting the meeting of the World Federation of Pipelines Industry Associations. It's great to be here for both events. I would also like to acknowledge the contribution to my paper of co-author, Dr Allen Beasley, Executive Director of the Australian Pipeline Industry Association. Australia is committed to being an international player and the Australian Pipeline Industry Association has begun to seek greater involvement in emerging global industry issues, especially through forums such as the World Federation.

The Australian Pipeline Industry Association, which I represent today as immediate Past President, is now 35 years old and was founded as an association for contractors. Through the 1980s, however, it evolved into the diverse organisation it is now, operating as a unique forum for pipeline owners, contractors, engineers, operators, advisors and suppliers of pipeline products and services. The APIA model allows these stakeholders to collaborate on issues of importance to the entire industry. Currently with around 200 members, pipeliners have reaped the benefits of a whole of industry perspective facilitated by APIA, from the development, promotion and support given to technical standards, to government lobbying, environmental and safety standards and successful collaborative research and development outcomes.

Today I want to start by providing a snapshot of the Australian natural gas transmission industry. Against this background, I will describe the ways in which the Australian industry association model has succeeded in meeting major opportunities and challenges over a recent period of rapid change. Finally this presentation will look at the industry's prospects domestically and consider the importance of global collaboration and cooperation.

Snapshot of the Australian Natural Gas Transmission Industry

Development of the natural gas and oil industry in Australia began during the late 1960s with the construction of a number of single producer, single market pipelines. By 1987, the basic framework of the delivery system was completed and natural gas was available in all mainland states of Australia, although principally supplying state capitals and major centres of industry. Typically gas was supplied from one production source operating as a monopoly, to government-owned utilities functioning as monopolies, which then sold gas to consumers. Natural gas was traded across state boundaries only to a very limited degree, and competition was not encouraged.

Crude oil pipelines have not developed in Australia beyond a limited system with some onshore piping in Queensland and in South Australia. Instead, as Australia's refineries are all coastal, crude oil is shipped around the coastline. Certainly there are gathering systems and pipes to loading terminals, but crude oil is not transported by pipelines to any great extent in Australia, nor is refined product.

The 1990s was the decade of transformation for the natural gas industry in Australia. In the early years government pipelines and utilities were privatised, and competition was introduced. All along the gas chain private companies purchased assets and formed stand-alone entities: gas transmission became a clearly distinguishable industry with separate interests and concerns. As barriers to gas supply and development were dismantled, the industry flourished.

Today, Australia has some 20 000km of natural gas transmission pipelines, compared to 9150km in 1990. This growth in a nation of only 20 million people with thin natural gas markets is a major achievement in the history of Australia's infrastructure development – and almost exclusively financed and led by the private sector. Furthermore, some of the most significant construction activity has led to the connection of major systems and the emergence of pipeline-on-pipeline and gas-on-gas competition in major markets.

Australia has reserves of around 157 000PJ with annual production in 2002 totalling 1200PJ. This means that we have around 130 years of gas supply at current rates of production. The bulk of our gas reserves are found in the north and north-west, but our largest markets exist on our southern and eastern coastlines. A number of industry professionals hold the view that a major transnational pipeline from the north or north-west, forming a major linkage in the national pipeline grid, is necessary to meet a projected shortfall in gas supplies in the southern and eastern markets. What is unclear, is the timing of the shortfall. However major customers in the south eastern markets are becoming concerned about gas availability and gas prices in the medium to long term. Given that some forecasts suggest a shortfall arising as early as 2008-09, immediate action is necessary given the lead times for pipeline approval and construction.

Value of a whole-of-industry perspective

One of the outcomes of APIA's evolution from its contractor base to membership across the industry chain, has been the development of a robust industry viewpoint on critical industry issues. The disparate views of the APIA Executive have strengthened the position of the Association as we have worked to achieve a whole-of-industry perspective through collaboration and consensus.

An example of a recent Association win occurred when the Federal Government announced its intention to impose an effective tax life of around 50 years on pipelines, which would have severely damaged pipeline development activity in Australia. However, effective lobbying on the part of the Association led to a government commitment to legislate for a more sustainable 20-year cap.

Some issues are particular to individual industry areas and they require separate management. For example, pipeline owners independently fund the work of commercial regulation management on the basis of $4 from owners to $1 from the Association. Recognition is given to the fact that if owners succeed all industry members benefit, however the issue remains at its core a problem for owners.

However, it would be wrong to pretend that the APIA gets it right every time. It will come as no surprise that the issue of common construction contracts is alive and well in APIA. The Association has experimented with various mechanisms of contracting. Partnering, in particular, was an easy step for some parties to seek to achieve. However, its success was met with mixed reactions because partnering by definition excludes some from the process.

Overall, however, the whole of industry approach has enabled the Australian pipeline industry to develop timely and innovative solutions to the array of challenges it has faced.

The objective of APIA members is building better, cheaper pipelines that meet the demands of the marketplace. I will now briefly discuss the ways in which our industry model has supported the achievement of key industry outcomes.

Technical standards

The Australian pipeline industry has enjoyed a good relationship with our technical regulators over the past decade. Australia's technical regulators are found in our individual states and territories rather than operating under a single national regulatory body. Despite the complexities presented by this state-based system involving eight different technical regulators, the industry has worked to develop and maintain an open dialogue with technical regulators and this approach has been welcomed and reciprocated.

This commitment to open communication served the relationship well in 1994 when all state governments of Australia responded to an APIA initiative and decided to adopt Australian Standard AS2885. The Standard sets out the principles, parameters and processes to be used to ensure that high-pressure pipelines deliver their loads

safely and reliably. It is maintained by the ME38 Committee, a joint committee consisting of technical regulators and industry representatives and provides a comprehensive document to guide the design, construction, welding and operation of high-pressure gas and liquid petroleum pipelines. With representation on this committee, technical regulators have grown to understand the risks of pipeline construction and maintenance, as well as the risks involved in the application of new technologies. It is a great model of "co-regulation".

With greater acceptance across the major stakeholder groups, changes to the Standard have been published and industry participants educated within a greatly reduced timeframe. For example when the Standard was changed following a review of Part 3, Operations and Maintenance, the timeframe from the commencement of the review, through to its publishing for commercial application and finally education of engineers across Australia was around 18 months. The APIA structure and approach enabled open discussion. APIA also held a series of seminars and workshops around the country to promote understanding. A further measure of its success is the adoption of the Standard in New Zealand, and there is strong interest elsewhere around the world in incorporating the Standard's principles.

The success of the Standard is a tribute to the spirit of cooperation that now exists between technical regulators and industry professionals. With a national focus and a dialogue based on mutual understanding, the AS2885 working groups have succeeded where divergent state-based technical standards could not.

Research and development

The Australian Pipeline Industry Association has been an active supporter of a credible, coordinated research and development effort for a number of years. One example has been the highly successful program with Australia's Cooperative Research Centre for Welded Structures, which over two years has made important contributions and changes to the Australian design standard (AS2885).

APIA research and development forums have produced outcomes that have been rapidly absorbed into specifications and the Standard (AS2885), and then applied in the commercial world. One such example of the effective, direct application of R&D findings occurred during the construction of the 840km Carpentaria pipeline (crossing through just 6 properties) in Queensland, a north-eastern state of Australia, in 1997. With completion necessary before the onset of the wet season in tropical north Queensland, peak lay rates of around 10 to 12km per day, for a 12 inch pipe, had to be achieved whilst satisfying all third party obligations, safety and quality objectives. During construction, traditional welding methods, which demanded that internal clamps be maintained 100% of welding time, were challenged by new research, which showed that the clamp could be removed at 75%, and hence moved to the next position in readiness for the next weld. There was no problem with what appeared to be early movement of pipe during the welding process. Overall welding time was reduced allowing the welding rate to be increased dramatically.

In the end, construction of the mainline was completed at an average lay rate of 7.7km per day (440 welds per day). Peak laying rates were regularly at 12km per day with a

record of 21km. With the rapid application of research, new cost effective and innovative alternatives were implemented at reduced and shared risk.

It is the view of APIA that a commitment to research and development that meets the needs of industry and technical standards is vital to the success of the pipeline industry in order to meet the demands of infrastructure construction in the new century. In late 2002 APIA signed a Memorandum of Understanding with the American Pipeline Research Corporation International, of the United States, and Europe's European Pipeline Research Group, to further technology transfer and pipeline research. Australia has much to contribute with our experience in the construction and operation of long distance, high pressure, thin-wall pipelines. Sharing that knowledge and our experiences internationally can only multiply the benefits for all pipeliners worldwide.

Environmental management

The APIA industry model has facilitated the development of an Environmental Code of Practice which sets out the key issues to be considered and addressed in the planning, construction, rehabilitation and operations phases of pipeline projects. The Code is our industry's response to an ever-increasing range of environmental approvals necessary for pipeline construction within a timeframe that aligns with the commercial requirements of major greenfields customers, such as remote power generation and minerals processing projects.

While in Australia we are seeing an increasing understanding of the differences between pipeline infrastructure projects and long-term impact, location specific projects such as mines, APIA believes more can be done internationally to promote the short term impact of pipelines - limited as it is to their construction phase – relative to the benefits pipelines deliver to communities.

In Australia, the Environmental Code of Practice has provided an effective mechanism for addressing the environmental concerns raised by governments and other stakeholders.

Prospects for pipelines in Australia

Together with credible technical standards and relevant research, the setting for commercial success needs to be supported by government policy that encourages private sector infrastructure development. Working against the industry in Australia is the current economic regulatory environment.

While the Australian Pipeline Industry Association's relationship with its technical regulators has developed into a productive and progressive collaboration, our relationship with Australia's economic regulators has become adversarial and counterproductive. As an industry we have concerns about the performance and the consumer bias of our economic regulators.

When the Australian gas industry began a process of reform in the early 1990s through privatisation and the introduction of competition, great hopes were held for a

surge in natural gas usage and the development of a sophisticated national market. By 1997, the year the present regulatory regime (the National Gas Code) came into effect, a national market had begun to take shape as pipelines crossed state borders and gas was delivered to new industries and their communities. However, the introduction of the Code and its selective interpretation by Regulators created uncertainty. Our economic regulators are highly interventionist, and lack accountability and transparency. With a third party access model based upon a cost of service approach, pipeline investment decisions are plagued with a new and at times unacceptable level of risk, and increasingly the time and energy of Australia's pipeline companies is taken up in litigation to defend our legitimate property rights.

The development of a national gas grid has effectively stalled over the past five years as evidenced by investor disenchantment, suboptimal plans for new pipelines and foreign companies, who purchased privatised pipelines during the 1990s, exiting Australia. Further evidence of private capital disenchantment is the reinvestment, or pending reinvestment, by government agencies in gas transmission pipelines.

The unhelpful and unproductive distraction provided by the economic regulators is particularly frustrating in view of the strong prospects for growth in natural gas demand. Forecasts point to a sustained growth in demand annually of approximately 4% to 2020 – around double the growth anticipated in energy demand across all sources. If fulfilled, natural gas will be over 25% of primary energy demand by 2020, up from 19.7% in 2000/01. Major areas of growth opportunity are industrial and minerals processing, power generation and to a lesser extent, commercial and residential. Added to this is an increased awareness of the potential for natural gas to act as a bridging fuel in Australia's efforts to reduce our greenhouse gas emissions. A fact which, although acknowledged by government, requires support through government policy.

APIA has successfully lobbied that a review of the application of the National Gas Code to transmission pipelines is required: the Council of Australian Governments is persuaded and a review has now commenced by the Productivity Commission. APIA will co-ordinate and partly fund the industry representation to the review over the next 6 months or so. The majority of funding will be provided by pipeline owners.

Global networking and collaboration

Looking outside Australia, pipelines are clearly now an international business. In a shrinking world, isolation is neither desirable, nor is it even an option. Overseas-based companies engage at all levels in the Australia natural gas industry, and increasingly Australian-based companies such as engineering and construction firms, and directional drilling specialists and engineers, are winning business outside Australia and the Asia Pacific. These players are well known to IPLOCA.

There are considerable challenges and opportunities internationally, and an open dialogue and common positioning will support the way each nation meets those challenges.

An example of the appropriateness of increased international alliances is the growing situation where economic regulators are themselves seeking international forums and collaboration. Australia's economic regulators are members of groups such as the OECD, APEC, WTO, International Society of Consumer and Competition Officials and the International Competition Network, which is the only international body devoted exclusively to competition law enforcement. This last organisation, amongst other objectives, seeks to encourage convergence in national competition policies towards best practice standards. Certainly these forums have to address real multi-jurisdictional issues, however the global community of pipeliners must develop a voice in such forums to ensure that industry concerns are not lost to the pursuit of the theoretical "best practice" regulation.

Engineering is an applied science. Regulation should be applied common sense, but we have found in Australia that "economic theory" dominates regulatory practice. It is not a science, but a philosophy. I am troubled by the increasing tendency to treat economics as a science. In the creation of these international economic/regulation "thinktanks" we could be creating a pool of people dedicated to reinforcing an international economic philosophy. History tells us that the prevailing economic wisdom at any point in time is transitory. I read somewhere recently a headline "economists are often wrong, but never uncertain."

CONCLUSIONS:

International cooperation is desirable for challenging interventionist regulators, removing impediments to developments, and through cooperation across the industry chain, progressing research and achieving new standards of excellence in technical performance, safety, and environmental management. For Australia, co-operation in research is very important – we are simply not resourced to finance research on the scale that larger nations are able. However the work we have done demonstrates our in-kind contribution and specific research programmes can be of considerable benefit. We are very proud of our achievements to date.

Innovation, breakthrough-thinking, new alliances, open dialogue and new levels of tolerance and cooperation must be the hallmarks of a new, credible and vibrant international pipeline community, and the Australian pipeline industry sees immense value in working with the world pipeline community towards the realisation of this vision.

There is clear value in the whole of industry perspective. APIA has had important wins in its lobbying activities, establishment of technical standards, the Environmental Code, and in research and development, although there is always more to be done than there are resources available - hence the importance of cooperation and information sharing. Many of APIA's successes have benefited from collaboration between components of the supply chain.

We are delighted that the fledgling World Federation of Pipelines Industry Associations is looking at our industry model and considering whether the co-operation upon which our model is based might be a useful example for other national organisations, or indeed international organisations. While Australia's gas

transmission industry is relatively young, the industry has experienced dramatic change over the past decade. Many companies have acquired the skills, experience and determination to compete in the international marketplace as design engineers, developers, contractors and suppliers of products and experience. It is worth considering whether common interests internationally are so great that we can work together on the basis of those commonalities. APIA will continue to look for opportunities to share knowledge and collaborate in ways that build the profile of pipelines.

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