

# The changing face of the Australian pipeline industry - 1998–2010

Max Kimber AM, Kimber Consultants, Canberra ACT

Published in The Australian Pipeliner — October 2010

The Australian pipeline industry has gone through various changes over the past decade. In 1996, Max Kimber of Kimber Consultants wrote two papers that addressed the changes to the Australian gas pipeline industry from its beginnings in the late 1960s until that time. Here, he provides an update to today, highlighting historical lessons and new developments in research that the industry can learn from.



Significant changes from the beginnings of the Australian gas pipeline industry in the late 1960s until 1996 laid the foundations for more to come. During the big privatisation push that occurred between 1994 and 1998, all government-owned pipelines were sold to international buyers or to consortia in which international firms were well represented. Then, as fortunes in their home countries changed, or the realisation struck that too high a price had been paid, most of the international buyers retreated – but not before they wrought large changes to the culture, contracting practice and technology of the industry.

## Australia's first pipeline entrepreneurs

By 1998, for the first time in Australia's natural gas pipeline industry, some pipeline owners became entrepreneurs. Many of the 'entrepreneurial' pipelines were built with some underpinnings by foundation shippers, but in most cases the developers were willing to take some significant risks by providing far more capacity than could be justified by the foundation contracts. Epic Energy's South West Queensland Pipeline and the then Duke Energy-owned Eastern Gas Pipeline are stand-out examples of this approach. Each pipeline has prospered and has been expanded to meet the demands of new markets and new sources of supplies.

The risks of this approach were mitigated by a well-informed understanding of how Australia's natural gas industry was to develop. This included a progressive view on the potential for Queensland's coal seam gas (CSG) to save the eastern states of Australia from gas supply shortages. There was also a clear understanding by some of the international firms that the plain vanilla firm service, take-or-pay method of contracting for gas transport would be a thing of the past, and that pipelines would be required to offer new and innovative transport and storage services to meet the market's requirements. Pipeline firms discovered that their contractual counter-parties were real customers who demanded customer service, rather than being treated as investment-grade firms whose credit-worthiness underwrote a mountain of debt in highly leveraged vehicles.

## The effect of regulation on the pipeline industry

Since 1998, the industry has faced significant sovereign risk in the form of heavy-handed economic regulation. Bureaucrats and gas users' groups that did not understand the contracting processes and economic drivers associated with transmission pipelines pushed for regulation under Australia's

competition policy in the mistaken belief that gas transmission pipelines were natural monopolies. In 1998, every transmission pipeline was regulated, but very few pipelines remain as such today. While most of those that are regulated incur the associated legal and filing costs, regulation has had negligible impact on revenue. The exception is APA Group's Victorian Transmission System (VTS), where heavy-handed cost-of-service regulation still applies.

Perhaps the greatest victory against regulation was achieved by Duke Energy in 2000, when an attempt was made by the National Competition Council and ACCC to regulate the newly built Eastern Gas Pipeline. Duke took the case to the Australian Competition Tribunal and proved that regulation was inappropriate. Since then, no new pipeline has been regulated.

The Victorian Gas Transmission System – excluding the Eastern Gas Pipeline and SEA Gas Pipeline – continues to remain an anomaly in that it is largely operated independent of the owner. Instead, the pipeline system, its compressors and storage facilities are operated by the Australian Energy Market Operator (AEMO), the successor to VENCORP and NEMMCO. This process, together with strict economic regulation, prevents the efficient deployment of pipeline assets and curtails any entrepreneurial expansion.

Other than minor upgrades on the Interconnector with New South Wales, stasis has set in for Victoria's major pipeline system. This represents a big change from the 1990s when the profitable Gas & Fuel Corporation built new pipelines and expanded others on a continuing basis to increase the use of gas as a primary energy source for Victoria.

### **Company developments**

Company structures in the pipeline industry continue to evolve, with the departure of the international owners and the acquisitive nature of Australia's largest pipeline company, APA Group. From its relatively small beginnings as the owner of the 2,000 km Moomba to Sydney Pipeline and its laterals, APA now owns or has a significant stake in some 12,700 km of gas transmission pipeline.

Epic Energy remains on the scene, not as an outpost of a US company, but as part of Hastings Diversified Utilities Fund. Epic is engaged in significant expansion plans for its Queensland and South Australian pipelines to service new markets and supplies. Jemena, which is owned by Singapore Power, is doing likewise, while in the west, DBP continues with massive expansion plans for its Dampier to Bunbury Natural Gas Pipeline.

### **“Gas is good!”**

This mantra, which is being pushed by gas producers and pipeliners, is highly appropriate for our times. Firstly, CSG has changed the gas supply situation in eastern Australia from one of critical shortage to beneficent surplus. Secondly, as a fuel for electricity generation, gas produces 50 per cent less carbon dioxide (if used in combined-cycle gas turbine power stations) than the most efficient black coal-fired generators. This is good for our environment. Gas is so attractive that we are now developing firm plans to export more of the stuff. This gives Australia two major problems, both of which affect the pipeline industry and both of which are relatively new to this industry.

The first problem is perhaps a good one to have. The enormous developments required for export of LNG need pipelines to collect the gas from the wells and to transport it to the LNG plants. This provides significant opportunities for pipeline contractors and material suppliers, but it also puts pressure on prices, quality and safety. Further, it tightens the supply of labour and it will be difficult to find the appropriate skills sets. As such, labour costs will rise.

The current contracting model of engineering, procurement and construction will be severely tested in this environment, and it may be time to re-assess the 'old' way of doing things, where the owner is much more involved in the design and construction process. A lack of appreciation for the old adage that "they who are best able to manage the risk, should take the risk", and a drive from debt providers to get a "fixed price" has left our current pipeline scene littered with poorly-implemented design and construction jobs.

As to the second problem that accompanies LNG export – Australia is facing a gas pricing problem that can best be expressed in short-hand as 'net-back'. That is, Australian consumers will ultimately be buying gas at a price that is competitive with the free on-board price of LNG at the export port – be it North West Shelf, Darwin or Gladstone.

This is a big change and, although it has been widely predicted, particularly by the author since 1999, it is beginning to be felt in Western Australia, and may soon be felt in Queensland.

In Western Australia two years ago, a wholesale gas purchaser could buy incremental gas supplies at around \$3–4 per gigajoule (GJ), but now that price has risen to \$8–9/GJ. This means that there will be closer scrutiny of pipeline tariffs, and customers will demand new types of transport services so that they can optimise the use of higher-priced gas.

Of course, the rise and rise of the CSG industry in Queensland – and the beginnings of one in New South Wales – will provide lots of gas and many opportunities for the pipeline industry. Some of Australia's largest diameter onshore pipelines are being planned – perhaps two or more 42 inch pipelines from Santos, BGGGroup, Shell/Arrow and others' gas fields to Gladstone, together with gathering and water disposal pipelines, processing plants and compressors to produce, process and transport up to 800 PJ/a – more than the eastern Australian states currently use. This is an awesome task for the pipeline industry and the project proponents.

The pipeline industry continues to change and, because it provides a service to the overall energy industry in Australia, it must adapt to the shifting physical, regulatory and economic environment. To achieve this, it will need to adopt new techniques, develop new skills and keep its management and engineering processes flexible. Some sectors of the industry are good at adapting to change, while others are less so.

## **Research developments**

There is a great deal of new technology available to improve the quality and efficiency of pipeline design and construction, yet we stick to techniques that were developed on the oil and gas fields of Texas 50 years ago. The industry is slow to adopt the results of research, despite the fact that the Australian pipeline industry's robust and active research program has already delivered new processes and techniques to make our pipelines safer and cheaper. We continue to see the same mistakes being made – badly-applied coating, weld cracking, poor environmental management, lack of understanding of fracture toughness, inadequate inspection and an unrealistic belief in the efficacy of the EPC process. We seem to be oblivious to the lessons of our history.

The newly established Energy Pipelines Co-operative Research Centre (EPCRC) will take our research program to a higher, more professional level, and, if the industry knows what's good for it, the results of research will be applied to improve safety and reduce the costs of new and existing pipelines. The EPCRC will break new ground in a research program that addresses the sociology of pipeline safety, in which researchers and industry advisers will study the human factors in the design, construction and operation of pipelines. The industry has a very good safety record, both in the workplace and the wider environment, but we have had a few incidents that have caused severe

---

economic disruption and which can be sheeted home to serious breakdowns in firms' organisational structures, pay structures, and the 'don't tell me the bad news' syndrome.

This sociological research program is being led by Professor Andrew Hopkins, whose work on the Longford Gas Plant explosion in 2000 first alerted me to the need for formal study on the subject. I referred to this work in a paper delivered to the APIA 2003 Darwin Convention and I suggested quite strongly that the industry take note. It hasn't, but I harbour some hope that the formal research program on the sociology of safety of pipelines may gain some traction.

The Australian petroleum pipeline industry has come a long way since the first oil and gas pipelines were built in the 1960s, and it has a great future if it continues to adapt, learn from its history, listen to its visionaries, remain open to new ideas, and improve its skills in innovation and the management of risk.