

WHITEPAPER: The role of coal seam gas in Australia's energy sector

Introduction

Cost-effective, plentiful in supply and never without its fair share of controversy, it's clear to see why coal seam gas (CSG) has been drawing headlines in Australia in recent years.

With conventional gas sources close to being depleted, CSG is rising in importance as the country seeks alternative, long-term sources of energy. Experts estimate that at least 20 to 30 per cent of Australia's current gas supply comes from CSG, with this number only set to grow in the future.

CSG is also growing to be one of the largest employers in Australia's gas industry. According to the Queensland CSG-LNG Industry Workforce Plan, the CSG to LNG workforce in Queensland alone is expected to reach 14,900 by 2024. This is a conservative estimate however, with the potential for the figure to expand to 17,000 depending on the number of trains and wells that will be developed by that time.

As with any source of energy, a number of challenges will have to be addressed if this unconventional gas becomes a mainstay in Australia. This whitepaper will explore the appeal behind CSG as an energy source, its opportunities and challenges in Australia and abroad, and how those looking to enter the industry can make use of training and courses.

Why CSG?

There are very clear reasons why CSG has grown to become such a significant component of the overall energy sector in Australia.

For one, there's plenty of it. The large number of quality reserves found across the country, especially on the east coast, means the future of CSG is relatively secure from a supply point of view. This is also one of the reasons behind the cost-effectiveness of CSG, another of its standout advantages.

"This doesn't mean you can't find large reserves of conventional gas," points out Craig Langford, director of MDQ Consulting.

"But in an unconventional market, where you'll have to go when conventional reserves have been depleted, it can certainly be at the lower end of the cost curve."

When used to generate electricity, natural gas also produces lower emissions than many other forms of energy, which is a massive plus as the industry aims lower its carbon footprint - although the environmental issues in the extraction of CSG are another matter entirely.

The risks and challenges

As with any other form of gas extraction, CSG comes with its fair share of health and safety risks, Mr Langford explains. However, the real points of contention and debate around CSG centre on the environmental impacts involved in the extraction process.

To extract the gas, miners need to drill deep into coal beds, a process that invariably causes highly saline water to rise to the surface. This waste water, which is unfit for human consumption and contains a large number of harmful pollutants, needs to be disposed of in a safe manner - one of the biggest challenges for operators.

In addition to the need to handle, store and dispose of this by-product in an efficient and safe manner, precautions need to be taken underground to ensure it doesn't adversely impact the surrounding environment.

The risks of reducing the water table and draining water from aquifers, as well as contaminating both underground and surface water while drilling, are serious issues to consider in CSG extraction.

CSG in Australia and abroad

In spite of these risks and challenges, CSG nevertheless remains a vital cog in the wheel that is Australia's energy industry. Mr Langford explains that while it currently has "limited impact in Western Australia and the Northern Territory", it is very important in the eastern part of the country.

In fact, given the pace of its growth, it may not be long before Australia becomes one of the biggest players in the global CSG market.

"America historically has produced a lot of CSG. However, because it's been going on for so long over there, its influence is decreasing, with shale becoming the more major driver of gas in America," Mr Langford says.

"CSG tends not to be produced in large quantities elsewhere, for example in Europe and Asia - where this is due to the fact that it is predominantly used in Western countries. Therefore, America and Australia are probably the major two globally when it comes to CSG."

One need only look at the vast range of CSG projects currently underway in Australia to get a sense of its prowess in this area. The majority of the projects are based in Queensland, particularly the eastern part of the state, with the Gladstone LNG project perhaps one of the largest in the entire country. Bowen Basin in northern Queensland is home to another of the country's most significant CSG projects.

With a series of smaller projects in the north of New South Wales also gaining traction, CSG production in Australia looks certain to expand into the future. In order to support this growth, professionals looking to enter or already working in the CSG sector in Australia can take industrial of the numerous industry training programs and courses available.

Industry training and courses for gas workers

A skilled workforce is essential to securing the future of CSG in Australia, according to Mr Langford.

"The scale of the projects that are being developed is huge, with each of those LNG projects requiring an initial capital of \$20 billion - and that's a lot of money," he says.

"That drives a whole lot of capital investment, for everything from drilling wells to building CSG plants and LNG plants, so there's been a massive requirement for skilled jobs in developing CSG to LNG."

Fortunately, Informa Australia offers a broad portfolio of professional courses for anyone whose work is connected to the CSG sector, whether directly or indirectly. For example, several of the courses run by Mr Langford - such as [Gas Industry & Market Fundamentals](#) - provide a broad but in-depth overview of the local gas industry, how the market is regulated and operated and how to conduct commercial negotiations in the sector.

There is also a range of CSG-specific courses, such as [CSG Fundamentals](#), which dig deeper into the workings of CSG and the opportunities and challenges surrounding this form of gas.

To learn more about how taking a gas industry course can enrich your professional career, [get in touch](#) with Informa Australia today.