



# FLOWLINE

APPEA • THE VOICE OF AUSTRALIA'S OIL AND GAS INDUSTRY

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## APPEA 2012 THE ENERGY REVOLUTION

The NanHai drilling at the Vincent field | PHOTO BY ROBERT GARVEY (robert@garvey.com.au)



AUSTRALIAN PETROLEUM PRODUCTION & EXPLORATION ASSOCIATION



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# from the chief executive

## Fiscal fiddling is taxing investors' patience

**Australia has built an international reputation as a politically stable country with an open and competitive market for upstream oil and gas investment.**

At a time when international and local companies have committed more than \$180 billion dollars in capital investment to develop Australia's gas resources, uncertainty over Australia's business taxation system is unsettling for oil and gas investors. The impact is greatest on projects under consideration, but not yet sanctioned, and on those weighing future exploration decisions, but it also has a chilling impact on the broader investment psyche.

Unfortunately, despite its strengths, Australia is developing a damaging propensity for continually fiddling with the fiscal regime on which long-term investment decisions are founded.

Over the past three years we have seen:

- resource taxation changes, including the extension of PRRT and condensate excise
- the introduction of a price on carbon
- changes to the fuel tax regime
- the imposition of additional costs as a result of general changes to the income tax regime.

Now, under the Business Tax Working Group process, the Australian Government has signalled that matters such as immediate deductibility of exploration costs and effective life caps for oil and gas depreciation are under review.

*Flowline* went to press before the delivery of the 2012 Budget, but it is extremely

unlikely that the Budget will have laid all the outstanding issues to rest.

Continual change sends worrying signals to local and overseas investment markets about Australia's fiscal stability and reputation as an investment destination. The government should not underestimate the degree of concern within the industry over this issue. Ongoing investment in the resources sector should not be taken for granted.

Some politicians and media commentators have been referring to the tax deductibility of exploration and fuel costs as 'tax breaks', implying that these are concessions or subsidies.

This is simply incorrect. The general rule of taxation is that business expenditure should be deductible against income one way or another, either immediately or over time through depreciation. Not allowing immediate deductibility of exploration or fuel costs would in fact overturn longstanding and important treatments under the income tax system.

Future oil and gas investment remains a fundamental building block that will support the growth of the Australian economy and underpin long-term taxation revenues for many years.

Australia must strike the right balance between ensuring the community obtains a fair return for the development of its resources and investors' need for a certain and predictable fiscal system.

APPEA calls on the Australian Government to engage in meaningful discussions with industry to assess fiscal settings and ensure continued investment in an industry that is clearly important to Australia's current future prosperity.

Ongoing investment in the resources sector should not be taken for granted



**David Byers**  
Chief Executive

## Australia must be protected from protectionism

Damian Dwyer

**In early 2012, some businesses and lobby groups have called for changes to national energy policy to ensure that a proportion of local gas production is reserved or quarantined for domestic industries.**

This policy stance assumes that developing Australia's gas resources is relatively easy, so a cheap price for a few needy industries is surely reasonable.

In reality, liquefied natural gas (LNG) export developments are complex, long-term and high-cost undertakings. And Australia is amongst the most expensive places in the world to develop these projects.

The development of much of Australia's domestic gas supplies has been made possible by developing fields for export.

Leveraging export gas opportunities has also opened up domestic gas opportunities. Increasing the domestic commitment of LNG projects, in response to a few industries seeking cheaper gas, would only serve to harm a healthy export industry.

First, the gas must be found and exploration is a difficult and expensive process with no guaranteed successes.

Once multiple production wells have been drilled and enough gas has been discovered to underpin a project, a sophisticated and very expensive liquefaction plant and export terminal must be built.

This is a massive undertaking, requiring cutting-edge technology, high-end project management skills, management of construction and schedule risk, and massive capital investment well in advance of any revenue stream.

Like all major projects, LNG developments must be financed and attract a sufficient return on investment in order to make the whole endeavour worthwhile for those who stump up the capital.

The development of Australia's gas resources will proceed only if projects are economically viable and linked to market opportunities.

LNG export developments are complex, long-term and high-cost undertakings.



The North West Shelf gas plant. The development of much of Australia's domestic gas supplies has been made possible by developing fields for export.

## Protectionism is a losing game

Gas exports do not necessarily affect the availability of gas for domestic markets. Gas will be available for local users; it's a question of some companies wanting an artificially favourable price.

But protectionism only leads us down a slippery and damaging slope.

Consider the logical conclusion of the gas reservation argument.

LNG developers are facing ever-growing construction costs and increasingly tighter margins.

Should they be allowed to demand that aluminium and steel manufacturers provide below-cost inputs to install new gas processing facilities and pipelines that are not commercial?

Clearly that would be unreasonable.

Similarly, gas reservation would discourage investments worth billions of dollars.

Policy interventions, in the form of domestic gas reservation, can adversely affect energy security by discouraging new market entrants and constraining supply diversity rather than increasing gas supply and sources.

The way to ensure sustained supplies of affordable gas is to enable large-scale investment that will result in competitive prices. Developing alternative onshore sources, such as coal seam gas and shale gas, will also increase the diversity and availability of natural gas in the domestic market.

We must recognise that Australia's current prosperity has been built upon competitiveness and openness to international markets.

As Productivity Commission Chairman Gary Banks said in late March: "The lesson of Australia's history is that [restricting trade] is a negative-sum game. That's an anti-productivity game that Australia shouldn't play."



Developing onshore gas sources such as CSG and shale gas will increase the diversity and availability of natural gas in the domestic market.

## NSW needs CSG—and soon

Rick Wilkinson



NSW has the potential to develop a major CSG industry. A Santos CSG compressor station near Roma, Queensland.

**NSW will face a gas supply crisis in the next few years unless the state’s coal seam gas industry is allowed to develop new projects, according to two leading consultancies.**

In a report prepared for the NSW Government, Wood Mackenzie warned that the growing NSW domestic gas market could be undersupplied by 2016.

This warning has been echoed in a recent report ACIL Tasman produced for Santos.

“The main current sources of gas supply for NSW— imports from Victoria, South Australia and Queensland— will come under increasingly intense pressure over the next decade as strong demand for local gas-fired generation in those states together with demand for Queensland CSG to supply large export LNG facilities diverts supply that would otherwise be available for supply to NSW,” ACIL said.

“This risk is further increased by the current situation in relation to existing long-term gas supply contracts. NSW is materially uncontracted post-2017.”

Wood Mackenzie and ACIL agreed that a gas supply crunch could be avoided, but only if CSG projects were developed without delays.

The greatest hurdles in delivering new NSW gas supply are not technical or commercial. The biggest threats are anti-CSG activism and an uncertain and cumbersome regulatory environment.

In NSW, green and NIMBY (not in my backyard) groups are using misinformation and fear campaigns to oppose the CSG industry. A hydraulic fracturing (or ‘fracking’) moratorium has been imposed on the state’s CSG industry and approvals processes have become drawn out and onerous. While Queensland CSG projects are surging ahead, in NSW very little exploration and



development drilling has been undertaken in the last 12 months.

Wood Mackenzie and ACIL warn that if this state of affairs continues, planned NSW gas-fired power projects will be further delayed, increasing the state's reliance on coal and imported gas.

NSW imports 95 per cent of its gas, but within five years gas fields in South Australia, Victoria and Queensland will increasingly be used to meet the gas-producing states increased demand for

domestic gas-fired power generation as well as rising demand from Queensland LNG projects.

Gas and electricity prices are already rising and NSW businesses and households will soon need local sources of gas if the state is to minimise electricity and gas price rises.

If the state is to provide its households and businesses with affordable gas and power, it must improve the regulatory environment for CSG exploration and production.

A NSW CSG industry would generate a lot of direct and indirect employment.



The oil and gas industry is not only creating direct employment but also broader economic benefits for Australia.

## Petroleum fuelling prosperity

Damian Dwyer

**There is widespread agreement that petroleum and mining are underpinning Australia's current prosperity and were largely responsible for reducing the impact of the global financial crisis on the country.**

But there are also concerns about the 'two-speed' or even 'multispeed economy'.

Fears over the resources sector's impact on manufacturing, tourism and other struggling industries are leading to calls for anti-competitive, protectionist measures such as local content quotas and gas reservations for local industry.

In some cases, these demands are prompted by nothing more than self-interest. But in other cases, there is a genuine, but misguided, belief that restraining the success of the resources sector would somehow benefit the national economy.

APPEA believes that the full benefits of the resources sector—and, in particular, the upstream oil and gas industry—are not generally well understood and are widely underestimated.

The massive investments associated with liquefied natural gas export plants, domestic gas plants and oil field developments are creating wealth and jobs across Australia, not only in direct employment but also in a wide range of service industries and in flow-on effects to service sectors not directly related to oil and gas. These investments greatly boost government revenues, regional economies, state economies and the national economy as a whole.

In order to quantify this effect, APPEA has commissioned Deloitte Access Economics to analyse the Australia's oil and gas industry's economic contribution.

The study—to be previewed at the APPEA Conference and released in full in June—will examine the industry's role in Australia's recent economic development and its likely role in the coming decades.

The assessment will encompass the impact of oil and gas operations across states and territories and the national economy, as well as its broader corporate

and social effects. A key focus will be to draw out the specific economic implications of industry activities and commercial linkages with other sectors.

The study will also provide an analysis of 'bigger picture' economic issues of relevance to the industry and policymakers. In doing so it may contain recommendations for future actions and priorities focused on supporting the industry's ongoing development and enhancing economic performance and resilience more broadly.

Both the advocates and the critics of the resources sector agree that industry has taken Australia to a turning point.

Unlike the critics, who mostly advocate various forms of protectionism, APPEA maintains that economic liberalisation has been good for Australia and it would be a mistake to return to the economic policies of the 1970s.

It is a mistake to think that hobbling an Australian success story will somehow help the broader economy. Supporting uncompetitive industries is never a good idea and history shows that once sectors become dependent on subsidies or protectionism, they stay that way.

The debate over these issues is of crucial importance, not only for the upstream petroleum industry but for Australia as a whole.

As well as commissioning this research, APPEA is increasing its economic analysis capacity. We will be working hard to shed light on these and other economic issues and to put forward intelligent arguments backed by hard evidence that show the way forward for our industry and this country.

Preliminary results of the Deloitte Access Economics study of the oil and gas industry's impact on the Australian economy will be released at APPEA 2012 in a presentation by one of Australia's best-known economists, the study's lead partner, Professor Ian Harper. Professor Harper is a Deloitte Access partner and a leading academic and an Emeritus Professor at the University of Melbourne Business School.

The full report will be launched on 25 June at a function at Parliament House, Canberra.

Economic liberalisation has been good for Australia

## Industry navigates marine reserve development

Keld Knudsen

**APPEA continues to engage with the Australian Government on designing and developing a marine reserves system that encourages responsible management without adding undue layers of regulatory burden.**

Under the Australian Government's Marine Bioregional Plans, a system of marine reserves is being developed to protect components of marine biodiversity and heritage that have important conservation value.

These marine reserves are in Commonwealth waters (from three nautical miles off the coast to the outer limits of Australia's Exclusive Economic Zone).

APPEA and Australia's oil and gas industry played an active role in helping the government develop the initial 14 marine reserves, which were established in the south-east bioregion (offshore Tasmania and Victoria) in 2007.

In 2008, the Australian Government initiated discussions on extending the marine reserve network to the remainder of Australia's bioregions.

APPEA and the oil and gas industry has been engaged with government, commercial fishing interests, non-government organisations and other sectors to identify regions for inclusion in the marine reserve network.

APPEA has also been working to ensure that the proposed marine reserves have minimal impact on industry

operations of the industry while still achieving environmental protection outcomes.

The draft reserve boundaries around Australia were released for consultation in 2011. Two types of reserves are proposed: marine national parks (restricted entry) and multiple-use zones (protected areas that allow sustainable use of natural resources).

It is expected that the reserves will be formally proclaimed in mid to late 2012, followed by a 60-day consultation period. Marine reserves will not come into effect until management plans are finalised in mid-2013 or later. The management plan provides details on the activities that may be carried on in the reserve and the means of regulating them.

The statutory consultation process has two stages — deciding the scope of the management plan and writing the draft plan. Both steps give industry opportunities to seek to ensure that the plan provides sufficient information and certainty in managing activities in marine reserves.

The Australian Government has indicated it intends that management plans will create a smooth system that works through existing regulatory processes — such as the Environment Protection and Biodiversity Conservation Act and offshore petroleum legislation — as much as possible.

APPEA is encouraged by the government's commitment to work with industry and resources agencies to achieve sensible and workable arrangements for all parties.



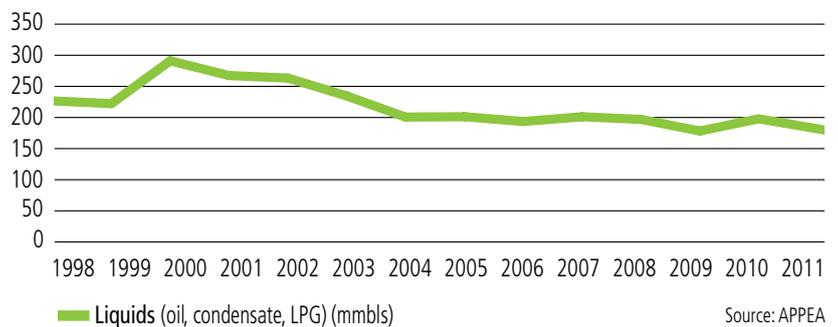
Seals basking on a Bass Strait oil rig. The offshore oil and gas industry has a track record of responsible environmental management.

## Oil and gas production

**Petroleum (oil and natural gas) accounts for 57 per cent of primary energy consumed in Australia.**

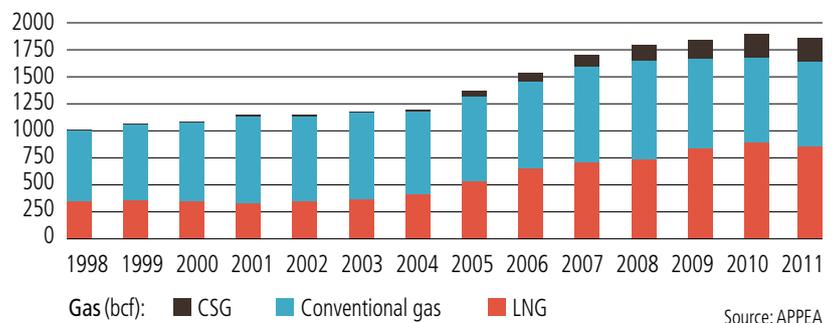
### AUSTRALIAN CRUDE OIL, CONDENSATE AND LPG PRODUCTION

Australia's production of oil, condensate and liquid petroleum gas (LPG) has steadily declined since 2000. A forecast slight near-term increase in liquids production will be followed by a downward trend over the next decade.



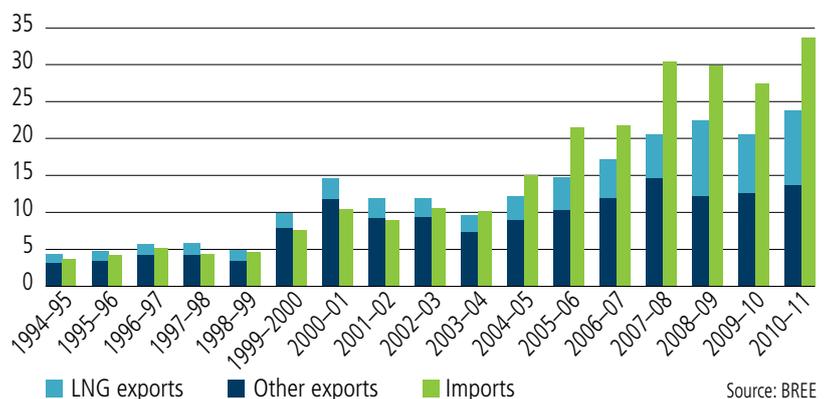
### AUSTRALIAN GAS PRODUCTION

Australia's gas production is growing steadily, responding to increasing domestic and Asian demand.



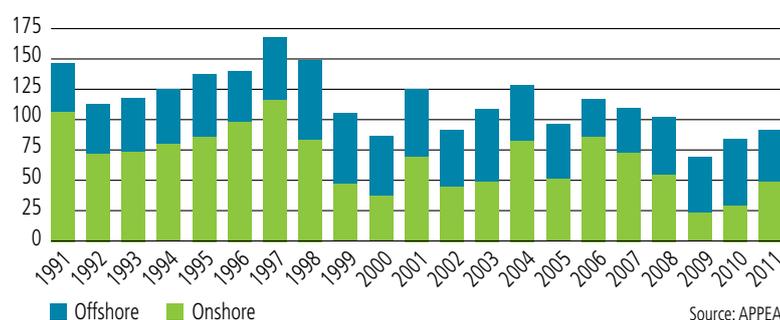
### AUSTRALIAN TRADE IN PETROLEUM

Australia's growing gas production is not enough to offset the imbalance between the country's growing demand for oil and its declining oil production. More imports will be needed to meet expected demand growth.



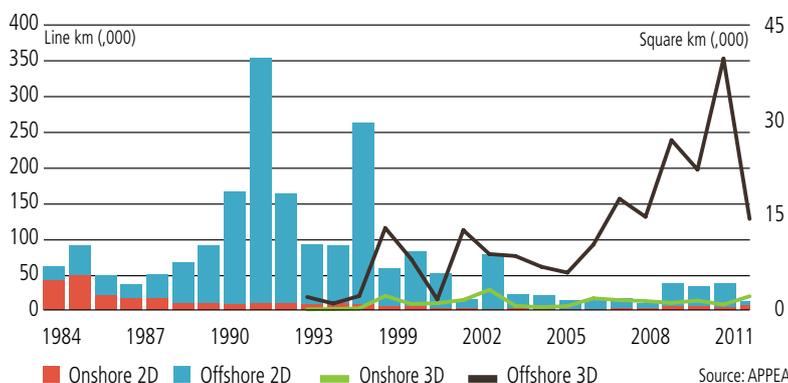
# Oil and gas exploration

**AUSTRALIAN EXPLORATION WELLS SPURRED 1991–2011**

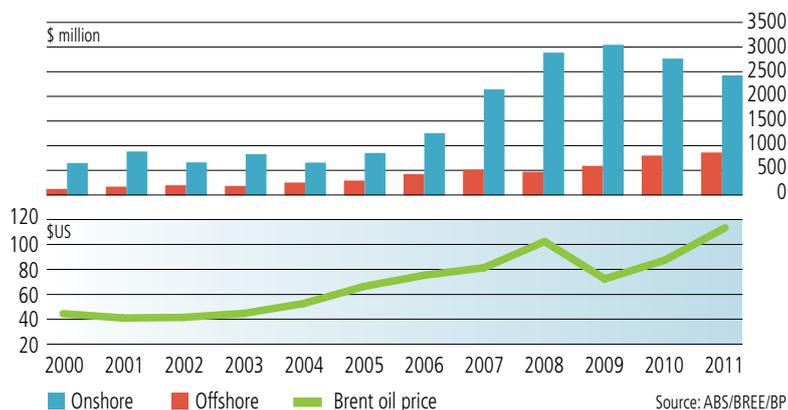


Offshore exploration expenditure peaked in 2009 and has trended downward in the two years following. Onshore exploration expenditure continues to trend upwards, but this increase is largely a result of the growth in exploration costs rather than an increase in activity.

**AUSTRALIAN 2D AND 3D SEISMIC SURVEYS 1984–2011**



**AUSTRALIAN EXPLORATION EXPENDITURE AND OIL PRICE**



## Rock star who helped build an industry

**Australian oil and gas pioneer Reg Sprigg wore many hats—geologist, explorer, company executive, environmentalist and founding Chairman of APPEA. Now his remarkable life is to be made into a television documentary**

History will probably best remember him most as the discoverer of fossils in South Australia's Ediacara Hills that revealed a previously unknown geological era. This discovery was groundbreaking because it showed the period when single cell life became multi-cellular.

Reg Sprigg was born in 1919 and grew up in Adelaide. He studied geology at the University of Adelaide and went on to become an iconic figure in the Australian oil and gas industry. He helped set up Santos and later founded Beach Petroleum and played a key role in discovering the first oil and gas fields found in the Cooper Basin in northeast South Australia and southwest Queensland.

But he also achieved fame outside the industry. He discovered some of the world's deepest undersea canyons, south of Kangaroo Island; found ancient fossils that revealed a previously unrecognised geological period—the Ediacaran Period of 635 million to 542 million years ago; and was the first man to cross the Simpson Desert in a motor vehicle.

He also had a great love for the environment. For many years Reg lived at Arkaroola in the Flinders Ranges, and established one of Australia's first eco-tourism resorts, Arkaroola Wildlife Sanctuary in South Australia's Flinders Ranges.

Mr Sprigg is now the subject of a new documentary—*The Ediacaran Man*—now being made. Executive producer, Christopher Beck, said the film is being based on a 2008 biography, *Rock Star*, written by Mr Sprigg's daughter-in-law, Kristin Weidenbach.

"Reg Sprigg was a pioneer who took on Australia's inhospitable outback and unearthed its riches, paving the way for modern Australia," Mr Beck said.



An Ediacaran fossil.

"Throughout his life, Reg clashed with authorities. There was strong initial resistance to his scientific work and to his pioneering role in the oil and gas industry.

"Yet despite the pressure to submit to the scientific, political and corporate conventional wisdom of the time, his persistence, fieldwork and logic eventually prevailed. He played a significant role in shaping this country's economy and scientific knowledge."

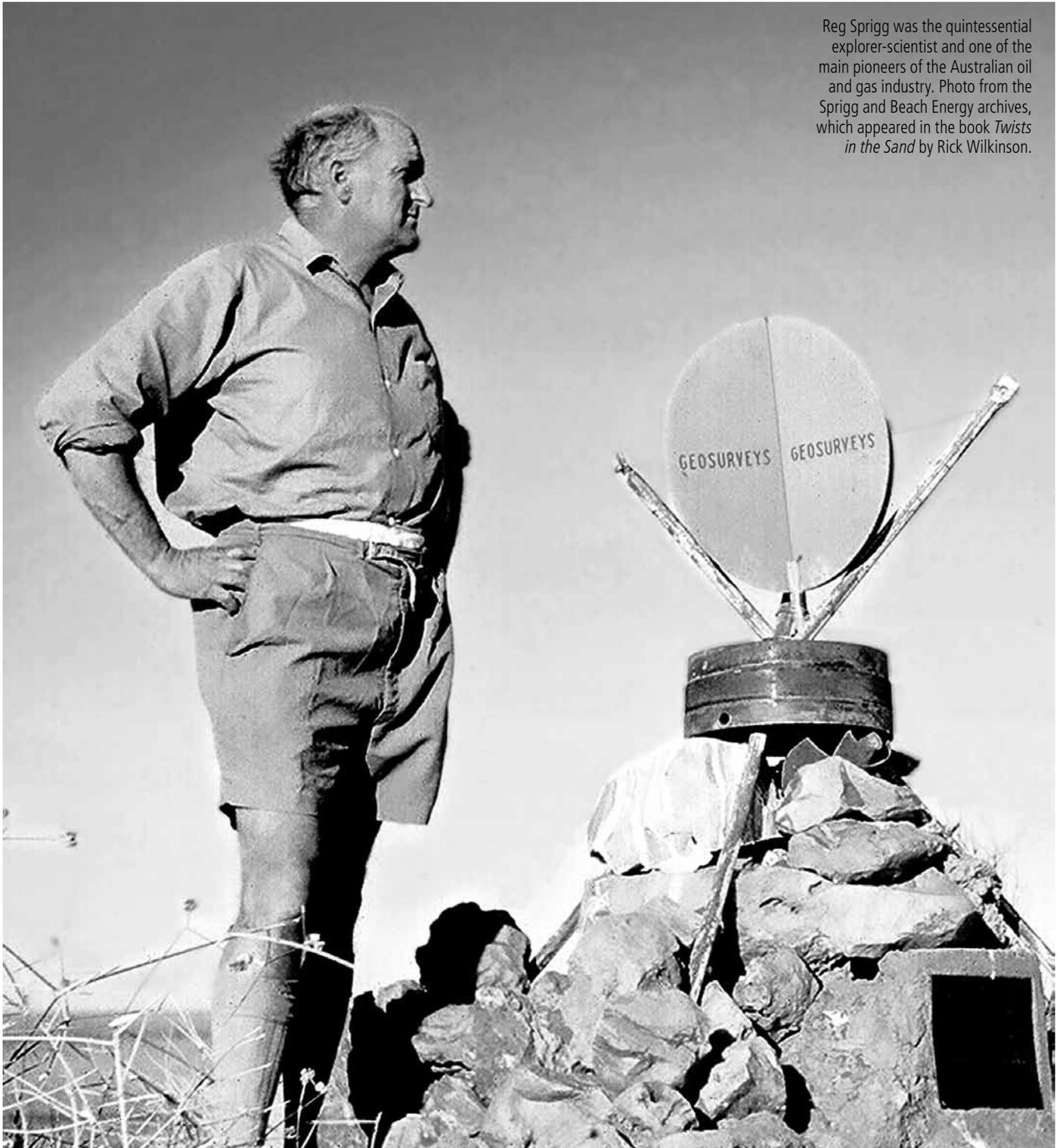
The film will use a combination of landscape footage, interviews with people who knew Reg Sprigg and period photographs, as well as archival and contemporary footage to tell his story.

"Reg was a keen cinematographer and we have access to a lot of footage of his expeditions," Mr Beck said. "We also have hundreds of great photos from various periods through his life."

*The Ediacaran Man* is being made with the assistance of APPEA, Santos, Beach and PIRSA. It is expected the film will be completed in 2013. People with relevant period or landscape photographs or footage are urged to contact the film's line producer, Marianna Shek, at [marianna@mediadynamics.com.au](mailto:marianna@mediadynamics.com.au).

Reg Sprigg died in 1994. In 1995, APPEA renamed its Gold Medal awarded to recognise an individual's outstanding service in promoting the Australian upstream oil and gas industry's objectives. It is now known as the Reg Sprigg Medal.

Reg Sprigg was the quintessential explorer-scientist and one of the main pioneers of the Australian oil and gas industry. Photo from the Sprigg and Beach Energy archives, which appeared in the book *Twists in the Sand* by Rick Wilkinson.





## Major new APPEA events in 2012

**The Australian oil and gas industry is growing in size and economic importance, and transforming the ways in which it operates.**

But the political, economic and structural hurdles the industry faces are also growing. Recognising the opportunities and challenges that face the upstream petroleum industry, APPEA is holding some significant new events for the first time to help stimulate debate and problem-solving in some areas of vital importance.

### **APPEA WORKFORCE DEVELOPMENT & PRODUCTIVITY CONFERENCE**

**17–19 JULY** DARWIN CONVENTION CENTRE

Workforce development and productivity are major issues for the oil and gas industry, and APPEA is greatly increasing its policy and advocacy work in these areas. The inaugural APPEA National Oil and Gas Workforce Development and Productivity Conference will bring together industry leaders, government representatives and workforce development and training professionals. The conference will discuss ways to improve productivity and enhance workforce development and skills in the oil and gas industry and in Australia generally. As well as keynote speakers and plenary sessions, the conference will offer tailored concurrent streams, specialist workshops and ample exhibition space.

### **2012 SPE / APPEA INTERNATIONAL CONFERENCE ON HEALTH, SAFETY & ENVIRONMENT IN OIL & GAS EXPLORATION & PRODUCTION**

**11–13 SEPTEMBER** PERTH CONVENTION & EXHIBITION CENTRE

This Society of Petroleum Engineers (SPE) international biennial event is the global petroleum industry's leading HSE conference and for the first time will be held in Australia. The event — co-organised by the SPE and APPEA — will cover emerging industry issues, best practices and lessons learned in health, safety, environment, social responsibility and HSE management. It will feature plenary presentations, panel discussions, technical and knowledge-sharing sessions. A technical exhibition held in conjunction with the conference will showcase the latest technologies, processes and innovations being used in the industry.

### **APPEA COAL SEAM GAS CONFERENCE & EXHIBITION**

**8–10 OCTOBER** BRISBANE CONVENTION & EXHIBITION CENTRE

Following last year's successful one-day Coal Seam Gas Water Forum, APPEA will host its inaugural Coal Seam Gas Conference & Exhibition. This new event will cover a wide range of topics, including: major projects, community engagement, land access, water management and beneficial use, the regulatory environment, workforce development, salt management, and global gas demand.

# Dates for your diary

	DATE	EVENT	LOCATION	MORE INFORMATION/TO REGISTER
2012	17–19 July	<b>APPEA Workforce Development &amp; Productivity Conference</b>	Darwin	<a href="http://www.appeaworkforceconference.com.au">www.appeaworkforceconference.com.au</a>
	10 September	<b>2012 HSR Forum</b>	Perth	<a href="http://www.appea.com.au/events/appea-hsr-forum.html">www.appea.com.au/events/appea-hsr-forum.html</a>
	11–13 September	<b>2012 SPE/APPEA International Conference on Health Safety &amp; Environment in Oil &amp; Gas Exploration &amp; Production</b>	Perth	<a href="http://www.spe.org/events/hse/2012">www.spe.org/events/hse/2012</a>
	8–10 October	<b>APPEA Coal Seam Gas Conference &amp; Exhibition</b>	Brisbane	<a href="http://www.appeacsgconference.com.au">www.appeacsgconference.com.au</a>
	29 November	<b>APPEA Annual General Meeting</b>	Perth	
2013	16–19 April	<b>LNG 17</b>	Houston, Texas	<a href="http://www.lng.org">www.lng.org</a>
	26–29 May	<b>2013 APPEA Conference &amp; Exhibition</b>	Brisbane	<a href="http://www.appea.com.au">www.appea.com.au</a>



**APPEA NATIONAL WORKFORCE DEVELOPMENT & PRODUCTIVITY CONFERENCE**  
 17–19 JULY 2012 | DARWIN NORTHERN TERRITORY | [www.appeaworkforceconference.com.au](http://www.appeaworkforceconference.com.au)



**HSR Forum 2012** | 10 SEPTEMBER | PERTH | WESTERN AUSTRALIA  
[www.appeahsrforum.com.au](http://www.appeahsrforum.com.au)



**APPEA–SPE International Conference on Health, Safety & Environment**  
 11–13 SEPTEMBER | PERTH | WESTERN AUSTRALIA  
[www.spe.org/events/hse/2012/index.php](http://www.spe.org/events/hse/2012/index.php)



**2012 APPEA CSG**  
 CONFERENCE & EXHIBITION  
 Brisbane Queensland | 8–10 October

## APPEA 2012—A meeting of minds

The exchange of ideas—both within the industry and between industry and policymakers—is important in developing the industry’s policy positions.

**The APPEA Conference is the Australian oil and gas industry’s leading forum for the exchange of ideas and information.**

These two roles are especially important this year.

Australia is preparing for a rapid expansion of its domestic and export gas industries, but is also facing serious challenges and potential pitfalls in areas such as industry regulation, tax and fiscal frameworks, and workforce development and productivity.

Industry, policymakers and the media must meet and exchange information and ideas to improve their understanding of these issues.

Leading politicians—including Federal Resources and Energy Minister Martin Ferguson, Federal Energy and Resources Shadow Minister Ian Macfarlane, and South Australian Premier Jay Weatherill, will be addressing APPEA 2012.

Politicians, their staff and senior bureaucrats will also be listening to conference presentations, meeting with APPEA staff and industry executives, and attending social functions where they can speak with industry executives and professionals, as well as analysts and other experts, in an informal setting.

In addition, more than 40 print and broadcast journalists will be covering the event, spreading industry news and views to opinion-makers and the wider public.

The exchange of ideas—both within industry and between industry and policymakers—is important in developing the industry’s policy positions.

The conference also spreads knowledge and ideas at a technical and operational level.

APPEA 2012 will include more than 100 presentations, addresses and panel discussions in its plenary and concurrent sessions.

Clockwise from top right: A press conference at APPEA 2011; Networking at APPEA 2011; and Resources and Energy Minister Martin Ferguson addresses APPEA 2011.



## Communicating with communities

**Community engagement is one of the major issues facing oil and gas companies today. It is particularly important in onshore projects in non-remote areas and in projects involving unconventional gas, which is poorly understood by many people.**

With the growth of unconventional oil and gas resources, industry is moving more and more into areas where we must co-exist with other stakeholders, says Total Chairman and Chief Executive Christophe de Margerie.

“To retain its license to operate, our industry must do its best to be accepted by these stakeholders,” he says.

“Certain techniques used for unconventional and conventional developments, such as hydraulic fracturing, arouse misunderstanding or even distrust within the community.

“To regain confidence, our operations must meet the highest safety and environmental standards.”

But clear and open communication is also important.

“We have to explain the scope of our projects, their impact for the local environment and their contribution to local development,” Mr de Margerie says.

“This must be based upon a real dialogue with the communities concerned.”

But Origin Energy Chief Executive Officer Upstream, Paul Zealand, says the coal seam gas industry’s engagement with local stakeholders should emphasise creating shared value with the communities in which it operates.

“There are significant upsides for coal seam gas operators who form partnerships with local constituents,” Mr Zealand says.

“These range from up-skilling farmers to diversify their farm revenue base, to improving rural productivity through irrigation projects using CSG water, to new technologies that minimise CSG operations’ environmental footprint.

“Industry must not only illustrate the facts, but also demonstrate sustainable development opportunities on the ground in regard to the major issues that are worrying local stakeholders.”

Mr de Margerie will address APPEA 2012 in the 10.50am Plenary Session — *A Future of Opportunity* — on Monday 14 May.

Mr Zealand will speak on the development of the CSG industry at the 8.30am Plenary Session — *Making the unconventional conventional* — on Tuesday 15 May. Other speakers in that session include: ExxonMobil Gas & Power Marketing Vice President Asia-Pacific, Africa and Power, Emma Cochrane, speaking on The evolution of the global gas market; and National Farmers’ Federation Vice-President, Duncan Fraser, who will speak on land access.

The session will conclude with a panel discussion — *Creating a Sustainable Business for the 21st Century* — involving Mr Zealand; Mr Fraser; Santos Vice-President Strategy and Corporate Development, Peter Cleary; Gas Industry Social & Environmental Research Alliance Director Dr Peter Stone; and a Queensland Government representative.

Above: With the petroleum industry increasingly moving into new regions and developing new sources of oil and gas, it must work harder to build bridges with communities.



## Unconventional petroleum to become commonplace

Oil and gas will retain leading roles in world energy supply for decades to come. But BHP Billiton Petroleum Chief Executive J Michael Yeager says the sources of these fuels will increasingly come from unconventional reservoirs. Shale gas, coal seam gas, shale oil and oil sands will deliver an ever-increasing share of the supply mix.

The development of United States shale reserves is only a few years old, yet it has already transformed America's energy picture.

"Today, shale gas supplies over one-third of all US natural gas production and supports well over 600,000 jobs," Mr Yeager says.

Shale gas contributes close to \$100 billion to US GDP, about \$20 billion in government revenue, and provides the average American household the equivalent of about \$1000 per year through lower gas prices.

"Those figures could well triple in just 20 years, making natural gas the preferred fuel for at least the next 50 years in what is already the world's largest gas market," he says.

The shale gas revolution is about to go global with fields likely to be developed in Asia, Europe and Australia, according to Mr Yeager.

He also predicts that the shale revolution will not be confined to gas.

"The great untold story is the potential for shale liquids, the production of which will accelerate rapidly as the industry exploits technology and lowers production costs," he says.

"Oil was recently proclaimed 'the fuel of the past' but it promises to remain — along with gas — very much a fuel of the future."

Mr Yeager will speak at the 10.50am Plenary Session – *A Future of Opportunity* – on Monday 14 May.

## Building LNG projects not enough

**Australia is now at the centre of global liquefied natural gas expansion, with first production from the country's newest project—the Woodside Petroleum-operated Pluto LNG—in 2012 and seven greenfield projects currently under construction.**

In the past 12 months alone, four projects with a combined capacity of almost 30 million tonnes per annum have been sanctioned.

But Woodside Chief Executive Peter Coleman—a speaker in APPEA 2012's second plenary session on Monday 14 May—warns that the success of these projects cannot be taken for granted as the Australian LNG industry faces many hurdles.

Given rising costs and a tight labour market, guiding these LNG mega-projects through the construction phase and towards first production will pose many challenges, he says.

And even if proposed schedules are met, bringing new projects on line does not in itself guarantee a global leadership role for Australian LNG.

### Aim to be the best

"Australia may well rival Qatar as the world's largest LNG exporter by the end of the decade," Mr Coleman says.

"But the task we should set ourselves is for Australian LNG to be a world leader in all facets of the industry.

"This is necessary if future customers are to continue paying a premium for Australian LNG in an environment of increasingly diverse gas supply."

Mr Coleman warns that in terms of global reputation, an increasingly crowded Australian LNG industry will only be as strong as its weakest link.

### Collaboration is crucial

"Greater collaboration within industry, and between industry and government, can ensure Australia's hard-won reputation for product quality and reliability, innovation and safety is maintained and improved," he says.

"Such cooperation could also help address Australian LNG's comparative disadvantages relating to costs, labour and infrastructure.

"Australian LNG's focus in the coming years will be on project delivery, but we also must keep an eye on the longer game to ensure Australia remains the best location in the world for LNG operators, investors and customers."

Peter Coleman will address APPEA 2012 in the 10.50am plenary session—*A future of opportunity*—on Monday 14 May.

## Developing skills to engineer the boom

Major gas developments are not only generating long-lasting benefits for Australia but also providing an opportunity for local industry to become world-class, according to speakers at APPEA 2012.

Chevron Australia's General Manager Greater Gorgon Area, Colin Beckett, says the local LNG operational support industry must build its capacity.

"The key is to create an environment that fosters development of new specialist skills and ensures Australian research and innovation is sought after globally," he says.

"The immediate challenge is to establish a framework in which local support industries in the energy sector can be identified and develop their capability to work on large projects such as Gorgon," Mr Beckett says.

"Alongside this growth in capability, local industry must continue to develop a strong safety and environmental stewardship culture to cement its credentials. Industry should also invest in research, innovation and high-end skill development to capture long-term operational opportunities."

Chevron has worked closely with Australian industry to give local businesses capable of performing work on the Gorgon Project the opportunity to do so.

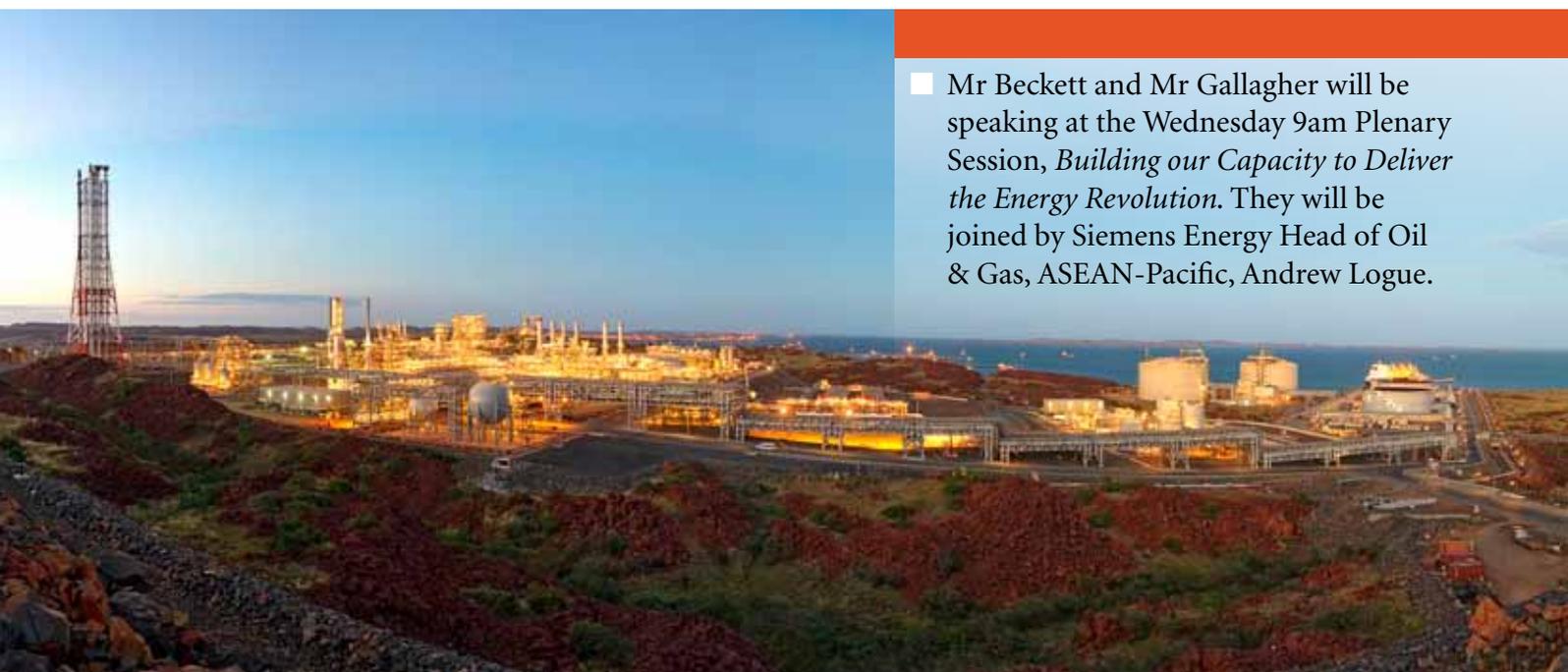
But Clough Chief Executive and Managing Director, Kevin Gallagher, says most Australian energy contractors do not yet have the capacity to engineer the country's gas boom.

"One of the factors constraining Australian contractors is the steady deterioration of labour productivity," Mr Gallagher says, "this problem is in part due to the country's severe skills shortage."

By 2016 most LNG projects under construction will move into the operations phase. Mr Gallagher says this presents an excellent opportunity for Australian contractors to provide operations and maintenance services to major LNG projects.

"Clough's approach to servicing the gas boom will be to develop the capability and capacity to be competitive in the Australian construction environment today, while positioning for future global opportunities, by creating high value exportable skills," he says.

Below: Woodside's Pluto LNG project. If Australia is to build more such projects, it must develop a more collaborative approach and address productivity issues.



■ Mr Beckett and Mr Gallagher will be speaking at the Wednesday 9am Plenary Session, *Building our Capacity to Deliver the Energy Revolution*. They will be joined by Siemens Energy Head of Oil & Gas, ASEAN-Pacific, Andrew Logue.

# APPEA 2012 SPONSORS

**AECOM** At **AECOM**, from feasibility through to decommissioning, we work across the entire project life cycle. Our services include social infrastructure, ports & marine infrastructure, transport, design consultancy and environmental services. With our strong safety culture, wealth of experience in major infrastructure projects and our highly experienced people, we have the flexibility to develop tailored solutions working closely in partnership with our clients.

**Apprenticeships Australia** is a professional apprentice and trainee service connecting businesses with motivated and committed apprentices and trainees. We have an exceptional track record in the oil and gas industry for safety, skills and completion rates and of handling all of the associated administration and compliance requirements. Visit us at Booth 90 to find out how we can help you build a skilled workforce.

**Bass Strait Oil Company** is an ASX-listed specialist petroleum operator focused on onshore and offshore south-east Australia. The highly experienced team has assembled a balanced exploration portfolio across the Gippsland, Bass and Otway Basins. All of these basins are proven petroleum producers and the Company's permit interests provide shareholders with strong leverage to high-impact discovery potential as well as near-term appraisal and development.

**Beach Energy Limited** is one of Australia's top 10 ASX-listed oil and gas exploration and production companies and is a member of the ASX 100 index. Beach's proved and probable reserves are forecast to grow to 95 million barrels of oil equivalent by June 2012, accompanied by annual production of about 7.5MMboe. Beach has a global portfolio of strategically located and prospective exploration and production tenements and is also at the forefront of Australian shale gas development.

**BP Developments Australia** is a global energy company that provides its customers with fuel for transportation, energy for heat and light, petrochemicals products, and retail services. In Australia, BP is exploring for oil and gas in the Great Australian Bight, is a foundation participant in the North West Shelf Venture, and is developing resources in the Browse and Greater Gorgon areas. It is also a leading refiner and marketer of fuels and lubricants.



**Buru Energy** is a substantial Western Australian onshore oil and gas explorer with rights to about 60,000sq.km of leases in the Canning Basin. In 2012, the Company's alliance with Mitsubishi will see it drill up to 12 exploration and appraisal wells—targets include oil, conventional wet gas and tight gas accumulations. Buru will also undertake seismic to delineate the size and shape of the Ungani oil structure and to identify further targets for future exploration.



**CGGVeritas** is the world's leading international pure-play geophysical company delivering a wide range of technologies, services and equipment to its customers across the global oil and gas industry. Geophysical equipment is developed and marketed by Sercel. Geophysical services cover offshore and onshore seismic acquisition, seismic data processing and imaging, as well as reservoir characterisation. CGGVeritas also offers seabed seismic services and owns a library of multi-client seismic data. The company's Hampson-Russell subsidiary provides leading geophysical software, training and technical services throughout the Asia-Pacific region.



**Chevron Australia** is one of the world's leading integrated energy companies and through its Australian subsidiaries has been present in Australia for 60 years. Chevron Australia is leading the Gorgon and Wheatstone projects, is a foundation participant in the North West Shelf and Browse LNG ventures, and produces oil on Barrow and Thevenard Islands. Additionally, Chevron's Perth-based Global Technology Centre provides technology solutions to operations throughout the world. Chevron continues to explore Australia's abundant gas resources with an extensive drilling campaign underway offshore in north-west Australia.



**Clough** provides engineering, construction and asset support services to major energy, resources and infrastructure projects in Australia, Papua New Guinea and South East Asia. Since 1919, Clough's services have successfully helped our clients turn their visions into reality. Today Clough people are designing, constructing, commissioning and maintaining leading-edge facilities for some of the world's largest energy companies.



**Coffey International** is a specialist professional services consultancy with expertise in geotechnical, environmental and mining engineering, as well as materials testing and analysis. We are well known in the oil and gas industry for deep technical skills and market-leading solutions to complex tasks. Coffey has been involved in more than 40 oil and gas exploration and production development projects around the world, and has worked in a diverse range of operations, including onshore and offshore facilities and pipelines, as well as processing of natural gas, LNG, LPG and crude oil.

# APPEA 2012 SPONSORS



**ConocoPhillips** has been responsibly delivering liquefied natural gas to the world since 1969. We operate one of only three LNG production projects in Australia—the Darwin LNG facility in the Northern Territory. ConocoPhillips has already invested \$10 billion dollars in the Northern Territory and in Queensland's Australia Pacific LNG project. With these projects and an exciting portfolio of assets—including Sunrise LNG, Browse Basin gas and the Goldwyer shale gas project—the company is excited about building energy for the future.



**DEC MIL AUSTRALIA** For more than 30 years, **Decmil Australia** has been a leading Australian Building and Civil construction company specialising in delivering outstanding services to the Australian petroleum, resources and government infrastructure sectors. Our strength of experience lies in building lasting client relationships, an award-winning safety program and a people-focused culture. When it's time to work with the best: it's time to work with Decmil.



**DMAW Lawyers** specialise in commercial law. Our skills are used for adding value through our core services of corporate advisory, business transactions and advice, and dispute resolution and risk management. We provide specialist services in resources and energy, construction, financial services and superannuation, franchising and distribution, health, hospitality, insolvency, water, wine, retail, property, manufacturing, venture capital and primary production. Please contact Glenn Davis or Peter Kupniewski on (08) 8210 2222 or via [www.dmawlawyers.com.au](http://www.dmawlawyers.com.au).



Since establishment, **DORIC** has gained a reputation for delivering quality projects safely and to agreed schedule and budget. With a capacity to deliver nationally, DORIC provides a wide range of services to the resources, infrastructure, defence, and commercial construction industries. Its consistent success and excellent performance means DORIC is widely to be a leader within the contracting industry.



**Easternwell**—a Transfield Services group company

is a national company offering a diverse range of class-leading drilling and well servicing capabilities for the energy and minerals sectors. Transfield Services has more than 27,000 people globally delivering operations, maintenance and construction services to the resources, energy, industrial, infrastructure, property and defence sectors. By working with Easternwell and Transfield Services, clients benefit from a more integrated service capability across the entire asset lifecycle, from downstream to upstream.



**Eni** is one of the world's leading integrated energy companies, operating in oil and natural gas, refining and marketing, power generation, petrochemicals, engineering and construction. Present in Australia since 2000, Eni operates the Blacktip Project in the Bonaparte Basin (100% equity), the Woollybutt oil field in the Carnarvon Basin (65%) and the Kitan Project (40%) in the JPDA. It is also a partner in Bayu-Undan and Darwin LNG (10.99%). Eni has an active exploration program in Australia and Timor-Leste with interests in a total acreage covering about 60,000sq.km.



**Ernst & Young's** oil and gas team is made up of a global practice of more than 9000 professionals with technical experience in providing assurance, tax, transaction and advisory services across the upstream, midstream, downstream and oilfield service sub-sectors. Our team will work with you to respond to emerging trends, anticipate risks, improve performance and operate more efficiently. Our deep industry focus can help you meet your goals and remain competitive. It's how we make a difference.



Operating since 1895, **ExxonMobil** is Australia's oldest petroleum company. Our business covers a wide range of petroleum-related activities—from oil and gas exploration and production to petroleum refining and supply of fuels and lubricants. Our primary role is to safely provide reliable and affordable supplies of energy, and we are committed to doing so in a financially, environmentally and socially responsible manner. Learn more at [www.exxonmobil.com.au](http://www.exxonmobil.com.au)



**Fragomen** is a world leading global immigration services provider with offices in 38 locations and more than 1600 staff internationally. In Australia, Fragomen operates as a law firm focused on global mobility. It has significant experience in providing corporate immigration, compliance and advisory, litigation and review, employment law, consular services, private individual migration and document procurement and legalisation services to oil and gas companies.



**Australian Government**  
**Geoscience Australia**

Australia's national geoscientific agency—**Geoscience Australia**—is a world leader in providing first-class geoscientific information and knowledge. The agency's Energy Division provides pre-competitive data and information to industry to stimulate and support petroleum exploration in Australia. The Division undertakes regional basin studies, assessments of hydrocarbon resources and provides geoscientific data in support of the annual acreage release round.

# APPEA 2012 SPONSORS



**Hess** embodies energy on the move with the speed, agility and spirit of an independent, and the global reach of companies many times our size. It is large enough to provide diverse opportunities, yet small enough for individuals to make a difference. Hess is developing Western Australia's Equus LNG Project and undertaking exploration in the Northern Territory and Western Australia as it continues to seek growth opportunities in Australia.



**HopgoodGanim**  
LAWYERS

A leading advisor to the resources and energy industry, **HopgoodGanim** provides strategic commercial legal advice to private and publicly listed resources companies, as well as working with smaller explorers and producers. We advise more than 30 per cent of ASX-listed resources companies headquartered in Brisbane, with our broader client base extending across local and international borders. HopgoodGanim was named a leading energy and resources firm in the 2010 Doyle's Guide to Queensland's Energy and Resources Law Firms.



**IDM Partners** is a leading provider of infrastructure development and project management services. Our team comprises experienced strategists, program and project directors and managers, and project delivery specialists including engineers, land access and approvals specialists, and project planning and controls professionals. Working in the oil and gas, energy, roads, water and communications sectors, we deliver outstanding results through an absolute focus on the client's needs. For more information about IDM Partners please go to [www.idmpartners.com.au](http://www.idmpartners.com.au) or email to [enquiries@idmpartners.com.au](mailto:enquiries@idmpartners.com.au).



Established in 1962, **IFAP** is a leading provider of safety solutions in training and consulting programs for industry. Training more than 23,000 people annually, IFAP is renowned as a quality nationally recognised training provider conducting courses in workplace health and safety, sea survival and maritime training, high-risk work licences, fire fighting and emergency response. IFAP's programs range from one-day courses to diploma-level qualifications.



**IHS Global** is a global information company with world-class experts in key areas shaping today's business landscape: energy, economics, geopolitical risk, sustainability and supply chain management. We employ more than 5500 people in more than 30 countries around the world. IHS energy industry expertise encompasses the entire workflow continuum from exploration, development and production through distribution, power generation and consumption. IHS — advancing decisions that advance the world.



**INPEX** is a worldwide oil and gas exploration and production company involved in more than 70 projects across 26 countries. INPEX is ranked in the top 100 global energy companies and listed on the Tokyo Stock Exchange. Part of the Australian business community since 1986, INPEX is involved in several projects in Australia and the Timor Sea, including the very large Ichthys LNG Project, Van Gogh, Ravensworth, Kitan, and Bayu-Undan and Darwin LNG.



**ION GeoVentures's** BasinSPANS™ (SPANS) are geologically driven, basin-wide seismic data programs acquired and imaged using the most advanced technology available. SPANS are customised to image deep within the geologic section, cover an entire petroleum province and overlay with areas of heightened structural or stratigraphic interest. BasinSPANS data is processed by ION's GX Technology group using the most advanced geophysical techniques available. For more information email [BasinSPAN@iongeo.com](mailto:BasinSPAN@iongeo.com).



**John Holland** is committed to being Australia's leading engineering, contracting and services provider to the infrastructure, energy and resources and transport services sectors. Operating across Australia and in New Zealand, South East Asia and the Middle East, John Holland's business is driven by its collaborative approach to project delivery and its diversity of skills and capabilities.



**JRS Petroleum Research** is a leading geomechanics and image log consultancy that prides itself on making sense of complex datasets and facilitating client understanding. Solutions are specifically tailored for individual clients using the company's flexible proprietary software suite. Over the past nine years JRS has worked throughout Australasia on a vast array of projects. The consultancy's reputation and project portfolio are continuing to grow.



**KPMG** is a leading provider of professional services to the oil and gas industry, offering an extensive array of disciplines (audit, tax and advisory) to support upstream, downstream and services organisations. KPMG's global oil and gas practice supports Australian and international organisations investing in all stages of the project lifecycle from exploration and acquisition, through to developing and operating significant projects all around the world.



**Lloyd's Register** provides independent third-party technical assurance, risk management, certification and validation solutions. We work with owners, operators, EPC contractors and manufacturers across the energy supply chain, including upstream, downstream, power and manufacturing sectors. Using our solutions, design, inspection and maintenance decisions can be taken with confidence. This enables operators to optimise use over the asset lifecycle, supporting our vision of ensuring safe, reliable and sustainable energy supply chains.

# APPEA 2012 SPONSORS



**Government of South Australia**  
Department for Manufacturing,  
Innovation, Trade, Resources and Energy

## Manufacturing, Innovation, Trade and

**Resources (Department for)** The Energy Resources Division of the Department for Manufacturing, Innovation, Trade, Resources and Energy is the lead agency facilitating ecologically sustainable petroleum exploration and development in South Australia. Its operations cover promoting petroleum acreage opportunities by providing geoscientific data and information, regulating via policy and legislation, and optimising royalty income streams.



The **Murphy Pipe and Civil** partnership unites the multinational resources of J Murphy & Sons with the Australia-wide knowledge

and experience of Pipe and Civil. The result is a company with unmatched capability that can deliver large pipeline and infrastructure projects for the mining, water, oil and gas industries. The company's proven capabilities include constructing large-diameter pipelines, CSG gathering systems, compressor and pumping stations, tunnels and associated works.

## **oilcareers.com** OilCareers.com

was launched in 1999, and has become the giant of online recruitment within the oil and gas industry. We offer job seekers an easy and effective way of searching for a new job or career across all specialities within the oil and gas and alternative energy industries globally. OilCareers is part of the Evenbase Group of recruitment websites, which has unparalleled experience in online recruitment. Evenbase Group itself is part of the Daily Mail and General Trust (DMGT) which has over 40 media brands globally.



**Origin Energy** is the leading Australian integrated energy company focused on gas and oil exploration and production, power generation and energy retailing. Listed in the S&P/ASX 20 Index, the company has more than 5200 employees and it is Australia's largest energy retailer servicing 4.5 million electricity, natural gas and LPG customer accounts. Origin has one of Australia's largest and most flexible generation portfolios. See [www.originenergy.com.au](http://www.originenergy.com.au)



**Pax Populus** is a specialist consultancy that provides social risk mitigation, reputation protection

and conflict resolution for high stakes (reputation and capital risk) projects. Pax applies proven approaches to build better understanding and stronger relationships. Pax works where communities and corporations collide, when listening has stopped, controversy prevails and the problem remains. Pax has worked on many of the region's most challenging projects spanning mining, oil and gas, forest resources, waste management and infrastructure sectors. See [www.paxpopulus.com](http://www.paxpopulus.com)



## **Petroleum Geo-Services (PGS Australia)**

is a leading, worldwide geophysical company providing an extensive range of seismic services and products for the petroleum industry, including seismic data acquisition, processing, reservoir monitoring and analysis, interpretation and electromagnetic studies. The company also has the world's most extensive 3D MultiClient data library. Headquartered in Oslo, Norway, PGS has more than 34 offices in 25 different countries, including large regional offices in London, Houston and Singapore.



## **Piper Alderman**

**Piper Alderman** is a leading legal advisor to the energy and resources sector. We advise in all areas of mining, oil, gas, utilities and resources-based law and have significant experience in projects throughout Australia and across the globe. Our national team provides services that take into account the sector's unique risks and rewards, offering advice on corporate and commercial transactions, licensing, regulatory, employment, environmental, native title and dispute resolution.



## **Platform Communications**

is a dynamic communication, marketing and graphic design consultancy that delivers strategic communication solutions to clients across energy and mining sectors. Our consulting team is qualified across a range of disciplines, including marketing, corporate communications, investor relations, journalism, business and graphic design. Our team delivers detailed and effective advice to ensure our clients' corporate communication strategies are innovative and effective.



## **PTTEP Australasia (PTTEP AA)**

comprises a group of Australian companies that are subsidiaries of PTT Exploration and Production Public Company Limited (PTTEP), Thailand's national petroleum exploration and production company. PTTEP and its group of companies have more than 40 projects around the world. PTTEP AA has 21 exploration permits in Australia and is engaged in the full lifecycle of oil and gas across exploration, development and production.



**Australian Government**  
Department of Resources,  
Energy and Tourism

## **Resources, Energy and Tourism (Department of)**

The 2012 Offshore Petroleum Exploration Acreage Release will be launched by the Australian Resources and Energy Minister, the Hon Martin Ferguson AM MP, at the APPEA conference. The Acreage Release is underpinned by a comprehensive information package prepared by the Department of Resources, Energy and Tourism, in collaboration with Geoscience Australia, Australia's preeminent geological research organisation, which provides pre-competitive geological and geophysical datasets and analysis on acreage release areas.

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Founded in 1994, **RISC** provides independent advice to companies associated with the oil and gas industry. Today we have 40 highly experienced professional staff and offices in Perth, Brisbane and London. RISC has grown to become the international consultants of choice, having completed more than 1300 assignments in 68 countries for nearly 500 clients. Since January 2000, RISC has been the principal technical and economic advisor on transactions whose total value exceeds US\$220 billion.

**RPS**

**RPS** is an international consultancy providing world-class local solutions in energy and resources, environment, infrastructure and urban growth. We provide integrated technical, commercial and project management support services to help clients develop their energy resources across the complete asset lifecycle. We have three decades of experience in oil and gas exploration and production and combine our skills with an extensive knowledge of specialist environmental management services and safety issues.



**S2V Consulting** provides technical and strategic advice to the oil and gas industry, including business consulting, front-end technical consulting services and specialist expertise throughout the asset lifecycle. We are an international consultancy with offices in Perth and London, helping clients find integrated and valued solutions for challenging issues. Solutions 2 Value, it's in our name and everything we do.



An Australian energy pioneer since 1954, **Santos** is one of the country's leading gas producers, supplying Australian and Asian customers. Santos has developed major gas, oil and liquids businesses in Australia, is undertaking a transformational LNG strategy, and is pursuing focused growth in its Asian business. Santos has about 2800 employees working across its operations in Australia and Asia.



Driven by innovation, **Sasol** is an integrated energy and chemicals company. We add value to coal, natural oil and gas reserves, using these feedstocks to produce liquid fuels, fuel components and chemicals through our proprietary processes. We mine coal in South Africa and produce natural gas and condensate in Mozambique, oil in Gabon and shale gas in Canada.



In Australia, **Schlumberger** is the leading supplier of oilfield services in both the offshore and onshore markets. Our services in the Australian unconventional market spans the entire life of the asset from advanced seismic acquisition and interpretation, through well construction and petrophysical evaluation, to completions, fracture stimulation, reservoir modeling and artificial lift. To discuss complete Drilling and Workover Project Management Solutions for your Australian unconventional exploration or development campaign, contact your Schlumberger representative today.



**Shell** explores for and produces oil and gas and trades in a range of energy resources. We create essential products from these resources, such as fuels and petrochemicals. In Australia, Shell's upstream business holds an interest in about 20 per cent of the gas resources in Australian waters. We are involved in more LNG projects than any other player in Australia and have plans to develop large gas resources via floating LNG, traditional LNG and CSG to LNG. We also have a substantial exploration portfolio off WA and the Northern Territory.



**TGS Nopec** provides multi-client geoscience data and services to E&P companies worldwide. TGS' geophysical and geological data products include multi-client seismic libraries, extensive magnetic and gravity data, the industry's largest global database of digital well logs and regional interpretive products. TGS also provides high-end depth imaging services to help resolve complex seismic imaging problems. TGS Asia Pacific is currently acquiring 14,000sq.km of MC3D seismic over the Exmouth Plateau to complement its existing +150,000 MC2D and +3,800MC3D multi-client AP data library.



**Total E&P Australia** is the Australian subsidiary of Total, the fifth largest publicly-traded integrated international energy group and a world-class chemicals manufacturer. Dedicated to meeting the world's growing energy needs on a long-term basis, Total has about 96,000 employees in more than 130 countries. Total holds interests in two Australian LNG projects – Gladstone LNG (27.5%) and the Ichthys project (24%), as well as interests in several exploration permits off Australia's north-west coast.

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**Technip** is a world leader in energy industry project management, engineering and construction. From the deepest subsea oil and gas developments to the largest, most complex offshore and onshore infrastructures, our 30,000 people offer the best solutions and most innovative technologies to meet the world's energy challenges. Present in 48 countries, Technip has state-of-the-art industrial assets on all continents and operates a fleet of specialised vessels for pipeline installation and subsea construction.



**WDS** is a leading integrated provider of specialist engineering, drilling, construction, fabrication and maintenance related services to the cross-section of energy, mining and infrastructure sectors. WDS has an extensive fleet of specialist equipment, experienced operations and maintenance personnel, project management teams and employees with strong technical and industry expertise. It offers surety of services with a safety and quality focus, enabling on-time and on-budget project delivery.



**Woodside** is the largest operator of oil and gas production in Australia and is Australia's largest independent dedicated oil and gas company. Woodside produces around 700,000 barrels of oil equivalent each day from an extensive portfolio of facilities operates on behalf of some of the world's major oil and gas companies. Its operated facilities include six LNG trains, five offshore platforms and four oil floating production storage and offloading (FPSO) vessels.



**WorleyParsons** is a leading provider of professional services to the resources and energy sectors and the complex processing industries. Our services cover the full asset spectrum in terms of size and lifecycle—both from the creation of new assets to services that sustain and enhance operating assets. WorleyParsons' EcoNomics™ range of services and technologies profitably embeds environmental, social and financial sustainability into project delivery across the asset lifecycle.

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