



REPRESENTING AUSTRALIA'S OIL AND GAS INDUSTRY

2011-12 HEALTH, SAFETY & ENVIRONMENT REPORT



Inside

HEALTH AND SAFETY	2
ENVIRONMENTAL PERFORMANCE	5
OFFSHORE WELL INTERGRITY	8
APPROVALS AND REGULATION	9
ONSHORE GAS	10

Health and safety

The oil and gas industry's health and safety performance continues to improve.

APPEA's health, safety and environment program supports excellence in the oil and gas industry's health, safety and environmental (HSE) performance by:

- promoting the achievement of high standards through benchmarking, identifying and sharing lessons learned, and best practice
- facilitating a whole-of-industry approach through the CEO Safety Leadership Forum
- promoting a performance-based regulatory regime that is applied in a consistent, cost-effective and efficient manner across all operations and jurisdictions
- developing and implementing collaborative initiatives to drive improvements in the industry's performance
- increasing government and community understanding of the industry's HSE performance.



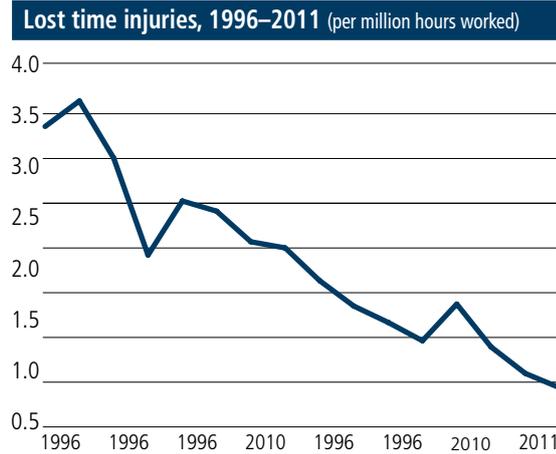
The Australian oil and gas industry has adopted the Common Safety Training Program (CSTP) for all personnel working in offshore production and drilling facilities.

Health and safety performance

From 2012, members agreed to report to APPEA on their process safety performance. This will ensure leadership initiatives are focused on preventing major accident events and personal safety. From 2013, APPEA's annual report will include this new process safety performance information.

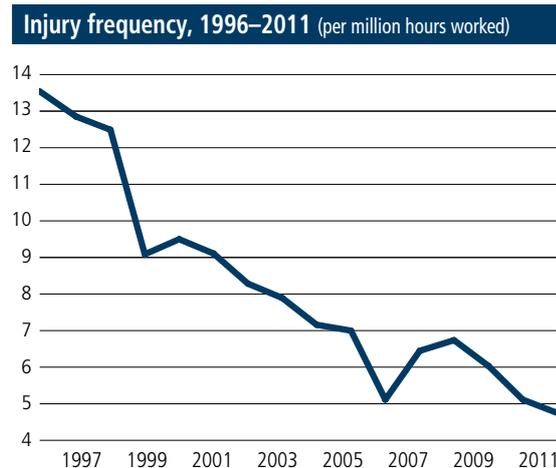
Incident statistics compiled by APPEA for 2011–12 reveal a steady improvement in the oil and gas industry's health and safety performance.

In 2011, the number of lost time injuries per million hours worked fell to a 16-year low of 0.8 compared with 1.0 in 2010 and 3.4 in 1996.



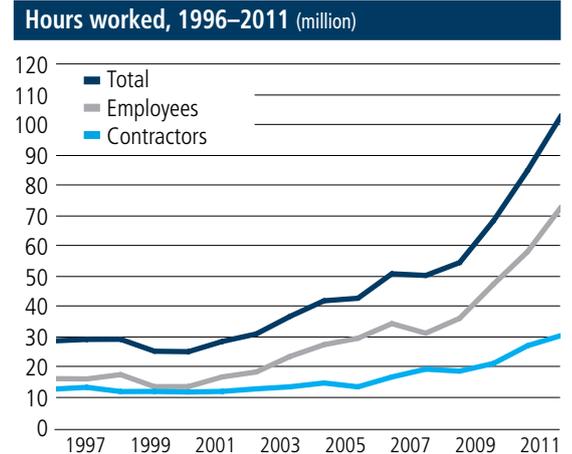
Source: APPEA safety performance data

The total recordable injury rate (recordable injuries per million hours worked) followed a similar trend, falling to 4.7 in 2011 compared with 5.1 in 2010 and 13.4 in 1996.



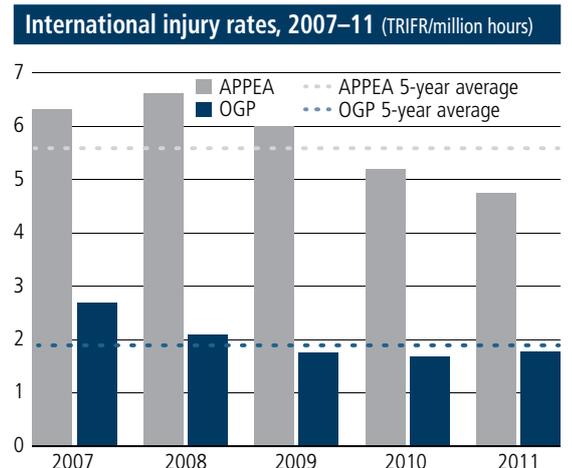
Source: APPEA safety performance data

Injury rates fell despite a significant increase in industry activity and hours worked over recent years. Onshore drilling activity expanded rapidly to meet the needs of Queensland's CSG industry. Construction activity reached unprecedented levels, particularly in Queensland, the Northern Territory and Western Australia.



Source: APPEA safety performance data

Despite these improvements, the Australian industry still has some way to go to match safety performance in other parts of the world. In 2011, the total recordable injury rate among members of the International Oil and Gas Producers Association (OGP) was 1.8 injuries per million hours worked.



Sources: APPEA and OGP Safety Performance Report 2010–11



CEO Safety Leadership Forum

The CEO Safety Leadership Forum, established by APPEA in 2007, continues to lead the industry's strategy to achieve the highest standards in health and safety. In 2011 the forum called for four major projects, which APPEA's Health, Safety and Operations Committee have now implemented:

- process safety
- vehicle safety
- a common safety training program (CSTP)
- a high-potential incident alerts system.

Process safety

Process safety refers to preventing a loss of containment, from corrosion or other critical process failures, that may cause major accidents with multiple injuries or fatalities. The process safety project focused on improving industry understanding of process safety risks, sharing industry-wide lessons, and implementing risk management strategies. The project included new requirements for reporting failures and high-potential incidents. As a result, reporting consistency has improved and more information is being shared across the industry.

Process safety was also the main topic of this year's *Stand Together for Safety* event. The program includes time for CEOs, executives and senior managers to talk with frontline employees about safety issues. In May 2012, 38,615 workers in 57 companies took part in discussions on *Keeping it contained: What's your responsibility?*

Vehicle safety

Another CEO-led initiative is the vehicle safety program and good practice guide for operators, contractors and sub-contractors in the rapidly expanding onshore oil and gas industry. CSG operators are adopting a new CSG Logistics Safety Code of Practice. Industry leaders are also holding forums to identify competency shortcomings and develop joint programs in heavy road transportation and heavy plant.

Common Safety Training Program

Two major safety initiatives were developed and introduced for the offshore industry. The CSTP defines safety behaviours for workers in the offshore production and drilling workplaces. All employees working on offshore production and drilling facilities must have a CSTP card or be working towards obtaining one. The Safe Supervisor Competence Program defines competency standards for offshore oil and gas construction supervisors.

High-potential incident alerts system

Members are now required to report high-potential incidents as part of the standard safety performance reporting process. A high-potential incident is an accident or near-miss that does or could result in a loss of containment, a fatality or multiple fatalities, or a major accident event performance standard not being met. APPEA distributes high-potential incident alerts to member companies to highlight lessons from such incidents.

Environmental performance

Environmental performance shapes how the industry is judged and its capacity for future growth.

The environmental performance of Australia's oil and gas industry is watched closely by a range of stakeholders, including regulators, financial institutions, non-governmental organisations, the public and others. Environmental performance shapes how the industry is judged and its capacity for future growth. APPEA members are committed to improving performance by developing better operating practices, examining these practices and sharing information with stakeholders.

In 2011–12, recent events such as Montara and Macondo, as well as continued opposition to onshore oil and gas activities, resulted in an extremely high level of scrutiny.

APPEA collects, collates and shares information on the industry's environmental performance to allow benchmarking over time and identify areas for improvement. Environmental incidents are reported to APPEA from across the industry, including the offshore and onshore sectors. Data are aggregated by incident and facility to identify and investigate trends and improvements.

Sharing relevant information among APPEA members can include:

- sharing the lessons learned from environmental incidents
- contacting companies with similar operations to discuss problems
- working with other industry members to resolve common problems
- sharing environmental management solutions.

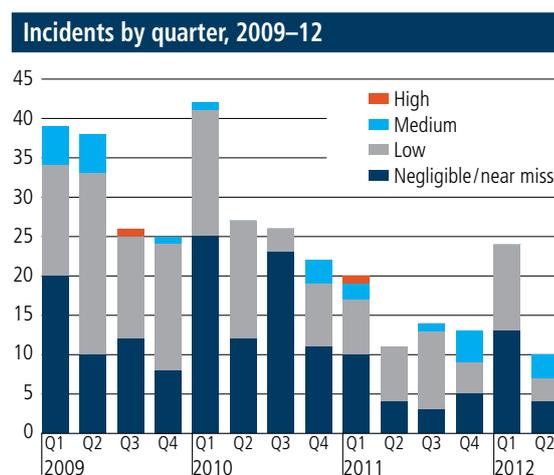
A reportable environmental incident is defined as: any incident that affects, or may affect, the environment; or any activity that exceeds the conditions or limitations of a licence or permit.

2011–12 results

The number of reported incidents is declining despite record levels of activity, particularly onshore. This is a direct result of the industry's strong commitment to improving environmental performance.

Sixty-one environmental incidents were reported in 2011–12, 18 fewer than in 2010–11 and almost half the number reported in 2009–10. The number of negligible and no-impact incidents continues to fall, particularly for onshore operations. Twenty-five were reported in 2011–12, almost half of the 48 incidents reported in 2010–11. Eight medium-level incidents were reported in 2011–12, an increase of three from 2010–11. A medium incident can and will be remediated, but is still significant and requires industry attention. Most of the reported incidents in 2011–12 (87 per cent) had low, negligible or no impact on the environment.

The following chart shows a steady downward trend in reported incidents since the first quarter of 2009.



Source: APPEA environmental incident database

Environmental incidents reported to APPEA

Impact	No. of incidents 2011–12	Change from 2010–11 to 2011–12	2010–11	2009–10
Negligible/near miss	25	-23	48	57
Low	28	3	25	60
Medium	8	3	5	2
High	0	-1	1	1
Total	61	-18	79	120

Source: APPEA environmental incident database

Incidents by facility

For each incident reported to APPEA, operators must describe the type of facility where the incident began.

Most incidents in 2011–12 occurred in production and processing facilities. This includes all operations (except for construction) associated with the production and processing of hydrocarbons on land (including maintenance operations and well workover operations, but not including infill drilling).

Marine vessels reported a number of incidents in 2011–12. Most were in the low and negligible impact categories. Vessels in this category include support, surveying and logistics vessels under contact by operators. Oil tankers that uptake product, offshore drilling units, or floating processing, storage and offtake vessels are not included.

Mechanism of incidents

The mechanism of incidents refers to the most obvious cause or point of failure in an incident. It should not be used to identify the root cause of incidents.

Most identifiable mechanisms remained stable over the past two years. Mechanical and electrical mechanisms continue to cause the most incidents, mainly in onshore processing and production facilities.

Mechanism of instruments		
Mechanism	2011–12	2010–11
Mechanical/electrical	34	36
Human intervention	9	9
Corrosion	6	4
Inadequate process/procedure	4	2
Planning failure	3	4
Design factor	2	11
Natural hazard	2	0
Failure to implement	0	2
Other	1	15

Source: APPEA environmental incident database

Coal seam gas

In 2011–12, APPEA continued to represent the CSG industry on water management and monitoring bodies including the Great Artesian Basin Coordinating Committee, the Queensland Great Artesian Basin Advisory Council and the Namoi Catchment Water Study Ministerial Oversight Committee. APPEA was also involved in community forums and actively countered widespread anti-industry misinformation in the media and broader community.

The release of the Namoi Catchment Water Study and the Queensland Water Commission's Surat Underground Water Impact Report established clear baseline and predictive data on the impact of CSG operations on water resources. The independent reports found the impact of CSG on water is minimal and manageable on a regional basis.

CSG companies are also continuing to invest in projects such as reverse-osmosis water treatment plants and plantations fed by CSG production water.

Environmental research

Australia's oil and gas industry takes a strategic view of understanding and managing its impact on the environment. It has long supported and invested in environmental research.

While environmental research and monitoring conducted by APPEA member companies provides evidence that effects are managed responsibly, publishing results and broader communication among stakeholders is important for confidence in the industry and its licence to operate.

In 2011–12, initiatives from APPEA's Environment Affairs Committee demonstrated scientific evidence to support the industry's social licence to operate and to reduce stakeholder and community opposition and the potential for unnecessary regulation.

Blue Book 3

The committee finalised funding arrangements for a new edition of the independent offshore research publication, *Blue Book 3*. APPEA released *Blue Book 1, Environmental implications of oil and gas development: The findings of an independent scientific review*, in 1994 (with a supplementary release in 2003). It served industry well, managing stakeholder concerns, building regulator confidence and contributing to the industry's social licence to operate.

Blue Book 3 will communicate the scientific knowledge base and environmental impacts of oil and gas development on the marine environment. The multi-million dollar project is expected to take two years and will include chapters on environmental aspects, stressors and hazards. An independent scientific panel will review the report before publication.

Marine research compendium

In addition to initiating *Blue Book 3*, APPEA released *A Compilation of Recent Research into the Marine Environment* at the 2011 Environment Conference.

The compendium brings together the considerable body of member-funded marine research into a single, easily understood reference. It is an authoritative source for agency personnel and ministerial advisers. The compendium provides abstracts of individual research projects and summarises their purpose, findings and implications.

The research projects include:

- Gorgon dredging simulation studies
- Barrow Island habitat studies (marine and terrestrial) with a focus on sea turtles
- whale migration patterns and behaviours
- studies in and around Scott Reef
- several studies of marine life associated with the proposed Macedon gas development
- a study on the collaborative whale shark data collection.

Many of these studies will be used in developing *Blue Book 3*.



The Australian oil and gas industry has long supported and invested in environmental research.

Collaborative Environmental Research Initiative

The APPEA Collaborative Environmental Research Initiative (CERI), started in 2011–12, enables companies to collaborate on environmental studies that support their business needs. The studies will fill environmental knowledge gaps, avoid duplication, and provide greater opportunities for companies and the industry.

Commonwealth marine reserves

In 2011–12, the Australian Government released details of the Commonwealth Marine Reserve Network proposal. The proposal establishes 44 new marine parks covering more than one-third of Australia’s waters. The reserves are divided into categories based on the conservation values of the reserves and on zoning developed by the International Union for the Conservation of Nature. Some of the proposed multiple-use marine reserves cover offshore oil and gas titles.

In response APPEA developed industry strategies to ensure regulatory requirements (such as management plans) do not burden or limit access to producing and prospective areas. APPEA is advocating for the minimal impact of the marine reserves on existing titles and operations and areas of moderate to high prospectivity. However, a number of offshore petroleum titles are covered by the proposed reserves. APPEA continues to work with the Department of Sustainability, Environment, Water, Population and Communities to understand the implications for offshore titleholders.

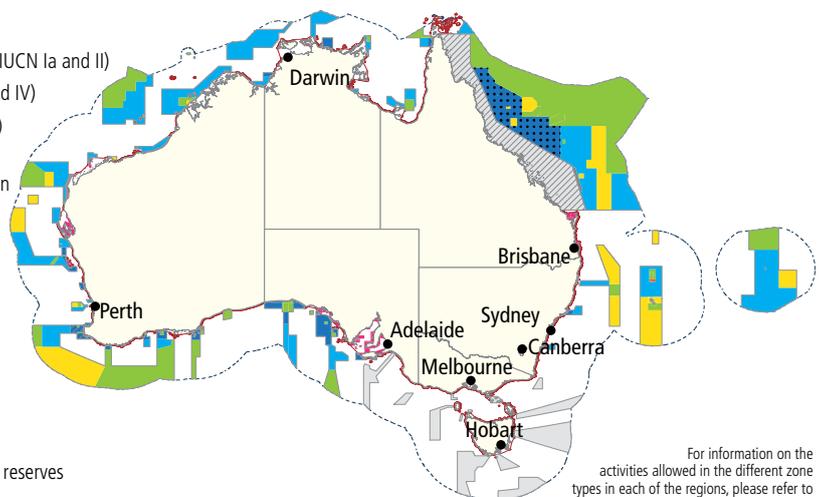
Proposed multi-use marine reserves

Proposed zoning

- Sanctuary and Marine Park Zones (IUCN Ia and II)
- Recreational Use Zones (IUCN II and IV)
- Habitat Protection Zone (Coral Sea) (IUCN IV)
- Habitat Protection and Conservation Park Zones (IUCN IV)
- Special Purpose Zones (IUCN VI)
- Special Purpose Zone (Oil and Gas Exclusion) (IUCNVI)
- Multiple Use Zones (IUCN VI)
- General Use Zone (IUCN VI)

Other marine protected areas

- Great Barrier Reef Marine Park
- South-east Commonwealth marine reserves
- State/territory marine protected areas



For information on the activities allowed in the different zone types in each of the regions, please refer to www.environment.gov.au/marinereserves

Source: Australian Government (2012)

Offshore well integrity

Since the Montara and Macondo incidents, APPEA has worked with governments and overseas operators to improve well integrity, employee competencies, and preparedness and response capability in the event of loss of control of an offshore well.

APPEA Well Integrity Committee

In late 2011, APPEA established a permanent well integrity committee. The APPEA Well Integrity Committee (AWIC) took on the work of the Montara Taskforce and focuses on well process safety and other prevention, preparedness and response initiatives. AWIC includes senior well integrity experts and representatives from the International Drilling Contractors Association and service providers. AWIC is working to deliver a well capping solution for the Australian offshore oil and gas industry in the event of the loss of control of a well. It also has carriage of the Mutual Aid Agreement, signed in September 2011, to enable the sharing of critical equipment and expertise in the event of a well incident. AWIC has also developed draft competency guidelines for well personnel based on similar work in the North Sea.

Subsea well response projects

APPEA is working with the international oil and gas industry to ensure Australia has access to the world's best well incident prevention and response capability. The International Oil and Gas Producers Association's Global Industry Response Group established a Subsea Well Response Project, which includes a complete subsea

incident response package of well capping equipment and a Subsea First Response Toolkit (SFRT) for use anywhere in the world.

The Australian project includes a world-class SFRT by early 2013. Announced in May 2012 and funded by an industry consortium, it will provide specialised equipment in Australia for immediate use at the start of a subsea well control event. The Australian SFRT is being developed in partnership with the global SFRT and will be compatible with it. It contains equipment to clean around the wellhead, enable intervention and prepare for relief well drilling and installation of a capping device.

As part of this initiative, the Australian oil and gas industry will establish a 500 cubic metre stockpile of dispersant for use as part of a well source control system.

Oil spill preparation and response

Oil spill preparedness and response capacity are improving through regional cooperation and collaboration with the Australian Marine Oil Spill Centre (AMOSC). APPEA's Environment Committee established an Oil Spill Working Group to develop clear responsibilities for the stakeholders and regulatory agencies involved in responding to an oil spill, and common strategies for issues such as oiled wildlife, use of dispersants, modelling and monitoring.

AMOSC's spill response capability has expanded with increased investment in equipment and doubling the size of the trained oil spill response team.



The Subsea First Response Toolkit signing ceremony at APPEA 2012.

Approvals and regulation



On 1 January 2012, NOPSEMA assumed responsibility for environmental regulation of Commonwealth Waters.

Commonwealth environment law reform

In 2011–12, APPEA made numerous submissions to the Commonwealth Department for Sustainability, Environment, Water, Populations and Communities as a part of consultation on reform of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The reforms are aimed streamlining regulation and building better cooperation between government, industry and communities while maintaining environmental safeguards. The submissions related to varied topics, including the cost recovery of EPBC Act operations, biodiversity offsets, general biodiversity policies and calculators, and an expression of interest in a national environmental research centre.

APPEA supports further reforms of the EPBC Act, but is seeking clarification on a number of important points and further consideration of oil and gas industry issues. The Australian Government is drafting legislative amendments for the proposed reforms, including streamlining assessment processes, improving the use of regional and strategic approaches and bilateral agreements, revising publishing and transparency requirements, and developing better processes for listing endangered species, habitats and ecosystems. For more information see www.environment.gov.au/epbc/reform/index

Steps toward a single offshore regulator

On 1 January 2012, the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) assumed responsibility for environmental regulation of Commonwealth Waters. This is an important step towards creating one regulator for the offshore petroleum industry and the reforms recommended by numerous government reviews and inquiries.

While the regulations have not changed substantially, NOPSEMA's approach to applying them differs from the previous approaches. The authority takes a risk-based approach to managing environmental performance that is consistent with international risk management standards, a goal-setting regulatory regime and the approach to regulating well integrity and safety.

An environmental plan must include robust, comprehensive and specific evidence that shows an activity's environmental impacts and risks are as low as reasonably practicable (ALARP) and at an acceptable level. The plan must justify why particular risk management strategies have been adopted instead of alternatives, and how these achieve ALARP.

In 2011–12, APPEA held a series of workshops and meetings to help operators understand and work through the requirements for environment plans, particularly in relation to the application of ALARP, stakeholder engagement and oil spill contingency plans.

This shift to a case-based approach to environmental management and the application of ALARP is a significant cultural and organisational change for the industry. APPEA is working to ensure this change is supported by further reforms to environmental regulation that reduce red tape and realise the full benefits of a single offshore regulator.

National

Relinquishment

Recent increases in regulatory burdens affect the ability of companies to comply with work program requirements, which leads to the premature surrendering of exploration acreage. APPEA is working with the Australian Government to improve relinquishment arrangements.

Onshore gas

In 2011, the COAG Standing Council on Energy and Resources agreed to develop and implement a national, harmonised regulatory framework for CSG.

The framework will address community concerns around:

- water management
- multiple land use
- best practice standards
- co-existence.

The national framework will accommodate the geographical, geological, resource, social, regulatory and institutional arrangements across each jurisdiction. Successful implementation will encourage greater public confidence in the regulation of the industry and promote the commercial extraction of CSG. APPEA has been involved in this work from the start, advising the Australian Government on the main issues and implications for industry.

APPEA is also working to reduce the regulatory burden in the CSG industry. The Standards Approvals, part of the Green Tape Reduction Process initiated by the Australian Government, have enabled a streamlined approvals process for most exploration and production activities.

Queensland

APPEA's lead role in CSG advocacy was formally recognised with the appointment of Rick Wilkinson, Chief Operating Officer – Eastern Australia, as the only industry representative on the newly formed Queensland GasFields Commission. The Queensland Government established the commission to manage co-existence between rural landholders, regional communities and the CSG industry in Queensland. It will play a key advisory role in policy development.

New South Wales

In March 2011, the New South Wales (NSW) Government imposed a stay on granting and renewing petroleum exploration and production licences. As a result CSG exploration activity came to a near standstill in NSW in the 12 months from 1 July 2011 to 30 June 2012. The standstill ended in September 2012 when the NSW Government announced its Strategic Regional Land Use Policy, a series of initiatives to identify and protect important agricultural land and water resources.

Under the policy all new and renewed exploration and production licences are subject to new conditions—a number as a title condition. The policy aims to balance agricultural, resources and community needs through improved regulation of gas exploration and development.

The main elements include:

- Strategic Regional Land Use Plans for the Upper Hunter and New England North West regions, with plans for other regions to follow. The plans map and protect the best agricultural land, known as 'biophysical strategic agricultural land'. They also map and protect equine and viticultural industries, defined as critical industry clusters, on strategic agricultural land
- a gateway process that imposes a rigorous scientific assessment on gas developments proposed on strategic agricultural land
- an Aquifer Interference Policy to ensure that no more than minimal harm occurs to water levels, quality and pressures from gas production activities
- the creation of a Land and Water Commissioner with unfettered oversight and a community advisory role for exploration
- the appointment of 40 additional departmental officers to ensure compliance with the policy, regulations and relevant acts
- strengthening the regulation of exploration activity through community consultation conditions and improved environmental assessments
- the introduction of agricultural impact statements at both exploration and development stages for CSG projects
- new codes of practice for well integrity and fracture stimulation.

Western Australia

In Western Australia, reviews of approvals processes and regulation undertaken in 2008 and 2009 led to changes to processes and administrative arrangements.

A lead agency for major resources projects and approvals was established within the Department of Mines and Petroleum. The department has also taken a lead role in regulating the onshore gas sector in Western Australia. It introduced an approvals tracking project with several measures to streamline resources approvals, including the introduction of an online bidding system. This will accompany existing online measures including the Environmental Assessment and Regulatory System and the Petroleum and Geothermal Register, and quarterly reporting of key performance indicators.

The systems aim to reduce application and processing times and allow companies to track the progress of applications. The department is also working with other agencies on reforms in other approvals such as native title, environment and Aboriginal heritage.

APPEA is participating in discussions on the department's Reforming Environmental Regulation program. The program will formalise a risk management framework for approvals and compliance and review areas of regulatory overlap.