

# ***Unconventional Gas: Managing Risks and Impacts***

Tabled 19 August 2015

The Auditor-General provides assurance to Parliament on the accountability and performance of the Victorian Public Sector.

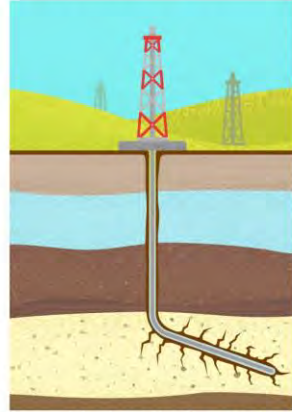
The Auditor-General conducts financial audits and performance audits, and reports on the results of these audits to Parliament.

On 19 August 2015, the Auditor-General tabled his performance audit report, *Unconventional Gas: Managing Risks and Impacts*.

## Overview

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- Is Victoria prepared for the development of an unconventional gas (UCG) industry?
- The audit found:
  - Risks and potential impacts of UCG not comprehensively identified or assessed.
  - Current regulatory system unable to effectively manage these risks and impacts.
  - Leading practices used by other jurisdictions are needed to manage any UCG development.



*Hydraulic fracturing cracks the rock layer at planned intervals along a horizontal well.*

The audit assessed whether Victoria was prepared to manage the challenges of unconventional gas, or UCG, should the government lift the moratorium.

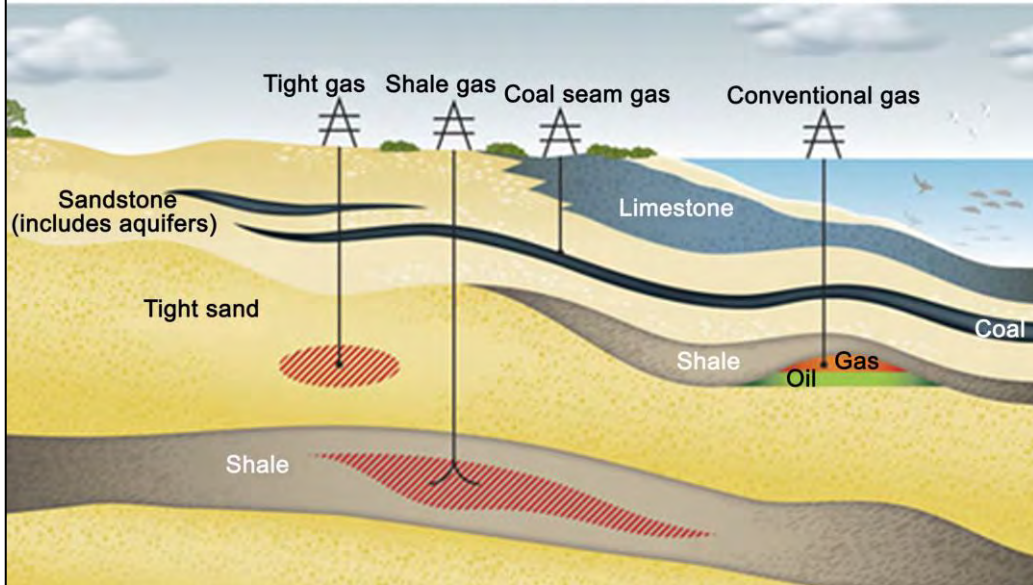
We found:

- The risks and impacts of UCG in Victoria have not been comprehensively identified or assessed.
- There are major problems in applying the regulatory system to manage the risks and impacts And
- If a UCG industry goes ahead, Victoria needs to implement the leading practices that other jurisdictions have identified for managing these risks and impacts.

## Background

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UCG locations and extraction differ to those of conventional gas sources.



UCG refers to underground sources of natural gas. Based on its location, it is identified as coal seam gas (CSG), tight gas or shale gas.

Hydraulic fracturing is often required to release UCG from the rock layers. It involves pumping water, chemicals and sand into a gas well under high pressure to fracture the rock and release the gas.

It is always needed for shale and tight gas and sometimes for CSG.

CSG also requires a lot of underground water to be extracted before the gas can be released.

The scale of risks posed by UCG is greater than that posed by other gas and mining activities.

It requires more drilling, at more sites, often in areas that underlie existing land uses, particularly agricultural land in Victoria.

## Background

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- The onshore UCG industry has not progressed in Victoria as it has in other states.
- Reasons include:
  - the location, extent and commercial potential of UCG is untested
  - nearby gas supply already available
  - a moratorium has been in place since August 2012.



Although UCG exploration activities were approved in Victoria in the early 2000s in both the Otway and Gippsland basins, commercial production has not occurred, for several reasons.

- The exact location, extent and commercial feasibility of these resources is still uncertain.
- Victoria already has access to conventional gas from large offshore reserves. And,
- More recently, the moratorium on many UCG activities has dampened industry's interest.

## Focus of this audit

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### Key areas examined

- What is known about the potential risks and impacts?
- How effective is the existing regulatory framework?
- What opportunities are there to improve Victoria's approach if UCG proceeds?

### Audit scope

- Department of Economic Development, Jobs, Transport & Resources (DEDJTR)
- Department of Environment, Land, Water and Planning (DELWP)

The audit examined whether Victoria is well placed to respond to the potential environmental and community risks and impacts of UCG activities in the event the moratorium is lifted. It looked at:

- what is known about the risks and impacts and how these have been addressed
- how effectively the existing regulatory framework has been applied to activities, and
- what opportunities there are to improve the regulatory system.

The audit assessed the activities of two departments, the Department of Economic Development, Jobs, Transport & Resources (DEDJTR) and the Department of Environment, Land, Water and Planning (DELWP).

## Risks not adequately identified or assessed

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- DEDJTR's identification, assessment and prioritisation of risks and impacts not systematic or comprehensive pre-2012.
- Its approach has improved since then, it has focused on:
  - key water resource risks
  - community concerns.
- Knowledge gaps remain around risks to the landscape, land use, air quality and human health.



*Wells, access roads and infrastructure can be widespread in commercial developments.*

**DEDJTR needs to develop a risk-based strategy to identify and assess all key risks and impacts.**

There are significant challenges in developing a sustainable UCG industry, including potential environmental and social impacts and land use conflicts.

They apply across the lifecycle of gas development, from exploration to decommissioning and aftercare. Numerous scientific reviews indicate these risks can be managed if an appropriate regulatory system is in place and administered well.

DEDJTR has not comprehensively assessed the risks associated with UCG activities in Victoria.

Until 2012, its identification of risks was informal and ad hoc—it assumed these could be regulated using the existing system.

Since 2012 DEDJTR has made good progress in identifying and assessing the key risks to water resources and community concerns around UCG activities.

But other important gaps still exist.

DEDJTR, in partnership with DELWP, needs to develop a risk-based strategy which transparently documents its approach to address this issue.

## The regulatory environment is not yet ready to manage UCG activities

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- The regulatory system does not address UCG risks.
- Previous exploration activities approved with limited understanding of the risks and the controls needed.
- Oversight of UCG activities has been poor.



*Gas well located in a grazed paddock.*

**The current regulatory system is inadequate and needs to be strengthened and reformed.**

The regulatory system is not yet ready to manage UCG activities.

It does not address the distinct risks and impacts that these activities pose, particularly large scale and cumulative impacts and potential land use conflicts.

DEDJTR's approval of UCG activities has not been risk based, nor has it effectively overseen industry's compliance with regulatory requirements. For example, it did not identify or target specific risks through its inspection and audit programs and has not implemented the recommendations of our 2012 compliance audit.

Compliance issues that it has identified have included poor rehabilitation, failure of fire controls and aquifer breaching. None of which led to any penalties or a review or change to its approach to regulating these activities.

DEDJTR is working to address some of these issues, but needs a suite of reforms to improve regulation and its oversight of environmental performance.

## Opportunities exist to improve planning and regulation should an UCG industry proceed

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- Processes to identify appropriate areas for earth resources development are inadequate.
- Environmental or social impact assessments are not mandatory.
- The rights of landowners and other effected parties are limited.
- Community engagement is inadequate.



**Land-use decision-making processes and community engagement need to be improved and impact assessments mandated.**

There are opportunities for DEDJTR and DELWP to improve the early identification of sustainable areas for UCG activities and the regulation of these, should an industry proceed.

Most importantly, there is currently no land use planning to determine whether extracting gas in a particular location will sustainably meet community needs and safeguard the priority economic, environmental and social values.

DELWP and DEDJTR need to make sure these assessments are made before any areas are released for exploration. There are also no mandatory environmental and social impact assessment processes, instead they are at the relevant Minister's discretion.

Rights of landowners and other effected parties are not fair and just. Compensation is limited compared to other states, and does not extend to affected communities.

Community consultation obligations are also inadequate. This can have a disengaging effect upon the community.

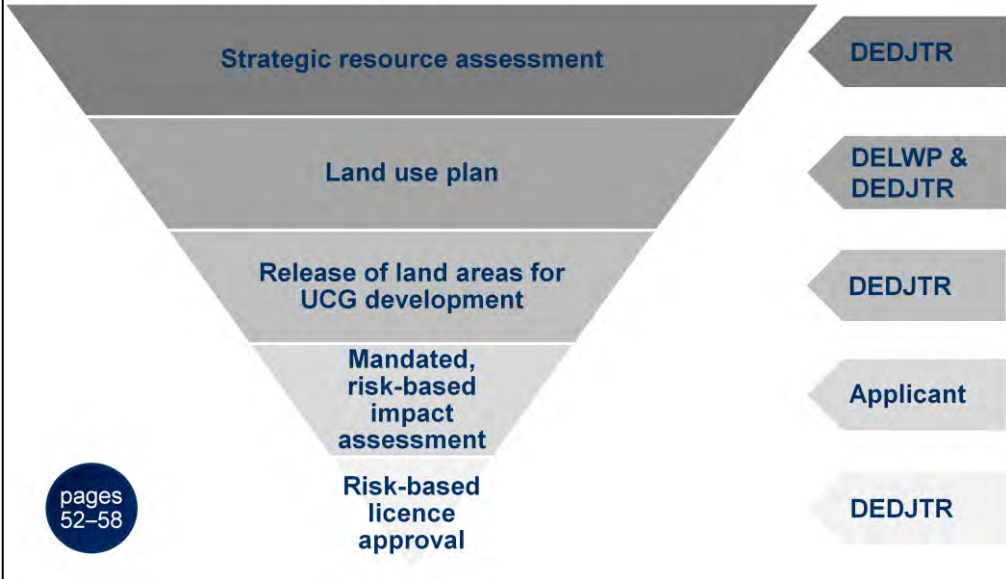
DEDJTR, in consultation with DELWP, needs to improve land use decision-making to identify sustainable UCG development areas prior to granting any licences.

The following slide shows the steps that such an approach may take.



## Opportunities exist to improve planning and regulation – *continued*

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Please refer to section 4.3 (pages 52-58) of our report for discussion of this approach.

## Recommendations

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- |                                       |   |
|---------------------------------------|---|
| 1 & 2                                 | DEDJTR, with DELWP, develops a coordinated and transparent risk-based strategy and approach to identify risks associated with unconventional gas activities.  |
| 3, 6,<br>7, 8,<br>9,10,<br>11 &<br>12 | DEDJTR amends the regulatory system and approvals process to include: <ul style="list-style-type: none"> <li>• leading practices specific to UCG activities</li> <li>• mandatory impact assessment and risk-based approvals processes</li> <li>• a code of practice for UCG activities</li> <li>• independent oversight of industry's performance</li> <li>• fair and just rights for all parties, through reviewing access, compensation and community consultation requirements.</li> </ul> |

The Auditor-General has made 14 recommendations:

- Action on two of these is needed to inform the government's decision about the moratorium.
- Nine are only required if the moratorium is lifted.
- There are three that will benefit the regulation and management of all earth resources activities.

The recommendations also address four themes:

1. The first is about **developing a transparent and co-ordinated risk-based approach** to identify and assess the key risks and potential impacts associated with UCG and determine whether these can be managed in Victoria using best practice controls.
2. The second is about **reforming the regulatory system** by incorporating leading practices to address the risks specifically posed by UCG activities, as well as other improvements that will result in best practice risk-based management of all earth resources activities.

## Recommendations – *continued*

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DEDJTR improves its approach as a regulator by:

- 4 improving its compliance approach, by addressing the recommendations of VAGO's 2012 audit *Effectiveness of Compliance Activities: Departments of Primary Industries and Sustainability and Environment*
- 5 introducing a reflective, adaptive and systematic approach to the way it administers the regulatory system to enable it to respond appropriately to new earth resources activities and emerging risks.

3. The third theme is about DEDJTR needing to **improve its approach and oversight as a regulator.**

## Recommendations – continued

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To improve the identification of sustainable areas, DEDJTR, in consultation with DELWP:

- 13 develops a land-use plan to determine the sustainability of an area for the extraction of unconventional gas prior to any licence being issued
- 14 reviews models to implement a mandated impact assessment process under the *Environment Effects Act 1978* and the relevant earth resources Act/s.

DEDJTR also:

- 8 improves the amount of detail included in the pre-competitive information packages accompanying any release of land for exploration through a more comprehensive resource assessment process.

#### 4. The final theme is about **identifying sustainable areas for UCG development**, and doing this early.

DELWP and DEDJTR need to develop a land use plan and mandatory impact assessment processes, based on a more comprehensive strategic resource assessment.

DEDJTR will also need to improve the information it provides industry if it releases any areas for unconventional gas development.

## Key messages

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**DEDJTR needs to develop a risk-based strategy to identify and assess all key risks and impacts.**

**The current regulatory system is inadequate and needs to be strengthened and reformed.**

**Land-use decision-making processes and community engagement need to be improved and impact assessments mandated.**

This slide summarises the key messages from the audit and the key items that need to change for effective management of UCG activities should the moratorium be lifted.

## Overall message

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**Victoria is not yet in a position to manage the risks and impacts associated with the development of UCG.**

In summary, Victoria is not yet in a position to manage the risks and impacts associated with the development of UCG.

## Relevant audits

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- *Managing Landfills (2014)*
- *Effectiveness of Compliance Activities: Departments of Primary Industries and Sustainability and Environment (2012)*
- *Managing Contaminated Sites (2011)*

Previous related audits are listed on this slide.

## Contact details

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