Productivity Commission Submission

November 2019

Senate Economics References Committee Inquiry into Australia's Oil and Gas Reserves

Introduction

The Productivity Commission (Commission) is pleased to make this submission to the Senate Economics References Committee in reference to its inquiry into Australia's oil and gas reserves.

The Commission is the Australian Government's independent research and advisory body on a range of economic, social and environmental issues affecting the welfare of Australians. We contribute by providing quality, independent advice and information to governments, and on the communication of ideas and analysis.

The core function of the Commission is to conduct public inquiries at the request of the Australian Government on key policy or regulatory issues bearing on Australia's economic performance and community wellbeing. In addition, we undertake a variety of research at the request of the Government and to support its annual reporting, performance monitoring and other responsibilities.

The Commission has previously undertaken a commissioned research study on the regulation of upstream crude oil and natural gas projects in Australia and its economic impact (PC 2009). More recently, the Commission examined barriers to more efficient operation of the eastern Australian gas market in a self-initiated research paper (PC 2015). Many of the observations concerning regulation of the industry in these two studies may be of interest to the current Senate inquiry, but we acknowledge that there have been developments in regulatory regimes and markets more recently which would inform the Committee.

We summarise some observations from the Commission studies below, and refer the Committee to the original reports for more detail. The first section of the submission explores the reasons for government regulation of petroleum (oil and gas) resources. The rest of the submission briefly discusses the approaches to allocating exploration and production rights, and policy settings for domestic gas reservation and coal seam gas.

It should also be noted that the Commission is undertaking a commissioned research study into regulation of the resources sector (including oil and gas), with a draft report due in

March 2020. This study will examine the effectiveness and efficiency of current regulatory regimes across jurisdictions and recent developments in the sector.

Why regulate petroleum resources?

Australia's upstream petroleum sector represents a major component of the Australian economy and makes a significant contribution to economic activity, providing employment opportunities, returns to Australian shareholders and revenues from taxes and royalties. The sector has also been a major destination for foreign investment.

Petroleum projects also inevitably pose complex, often multi-jurisdictional, environmental, safety and other challenges that must be managed.

There are several legitimate roles for government in managing petroleum resources in a way that maximises net community benefits. Rationales generally relate to 'public good' characteristics of an activity, externalities, information problems or concerns about monopoly infrastructure (PC 2001). All of these rationales apply in the upstream petroleum sector.

- The information obtained from petroleum exploration has *public good* characteristics, and incentives to undertake exploration would be poor if other companies could 'free ride' off those who made initial discoveries. In response to this problem governments establish a system of property rights, such as exclusive retention or exploration licences for particular areas (possibly following a competitive bidding process) (PC 2001). Governments may also need to regulate to deal with disputes relating to property rights, such as to clarify ownership when resources are found on land owned by private individuals, or on land subject to native title.
- Examples of possible *negative externalities* (or spillovers) relating to upstream petroleum would be risks of pollution or environmental damage, risks of damage to heritage places, or threats to public and/ or employee safety. There could also be *positive externalities* (spillovers) related to the upstream petroleum sector, for instance, industry provision of common-use infrastructure, environmental monitoring programs and access to new water resources.
- To deal with *information problems*, governments typically provide maps and data to upstream petroleum businesses to assist with exploration, and often require provision of data about exploration activities or petroleum discoveries from oil and gas companies. The Australian Government provides pre-competitive geoscientific data because it has public good aspects and this helps in attracting private investment to Australia.
- *Natural monopoly* concerns could apply to upstream petroleum assets such as pipelines, and — where specific exemptions from access claims do not apply — they may be subject to third-party access provisions.

As for any industry, the regulatory framework for petroleum sector ideally should be designed and implemented to promote community wellbeing without imposing unnecessary burdens.

Allocation of petroleum exploration and production rights and 'use it or lose it' provisions

A brief description of the Australian tenement regime

The three main approaches used by Australian jurisdictions for conferring exploration or production rights to petroleum resources are exploration licences, retention leases and production licences. The term 'tenement' can be used to broadly describe this system.

Generally, the process for allocating rights begins with an exploration licence, which permits the holder to explore for resources on a specified area. Exploration licences are time-limited. At expiration, a company may choose to renew or surrender its licence, or apply for a production licence. An alternative option if the company discovers petroleum is to apply for a retention lease.

Retention leases enable explorers to maintain an interest in areas which may contain mineral or energy resources where extraction is not yet commercially viable. Leases are intended to provide companies with an incentive to undertake high risk, high cost exploration. The objectives of retention leases are typically balanced by the desire of governments to see resources developed. Like exploration licences, retention leases are time-limited. Rules for their renewal differ across jurisdictions.

After exploration has uncovered petroleum resources that can be commercially developed, a company may apply for a production licence, which enables it to undertake petroleum production in the specified area. Petroleum companies pay royalties on production, and/or profit-based taxes, in return for the right to extract non-renewable resources.

Strengthened criteria around retention lease renewal may be counterproductive

The objective of petroleum tenement regimes in all jurisdictions should be to maximise economic rent (the value of production when all necessary costs have been deducted (Hogan 2003)), which entails optimising the timing of exploration and production. Well-designed tenement regimes enable petroleum companies to make production and investment decisions on the basis of market signals through time. There are several ways in which the design of tenements can influence the timing of exploration and production — as well as the relationship between these two activities — such as by setting limits on the duration of the tenement, and by imposing 'use it or lose it' conditions.

In the past some large industrial gas users suggested that the arrangements regarding retention leases enabled the 'hoarding' of gas and created barriers to domestic gas supply, and proposed what is effectively a strict 'use it or lose it' policy for retention leases. Under such a policy, lease holders might be compelled to commence production or lose the resource title, regardless of differing views about commerciality.

However, the Commission observed in 2015 (PC 2015) that gas companies have an incentive to maximise their profits, which will lead them to deliver their gas to whichever customers are consistent with this objective. Accordingly, a 'use it or lose it' mechanism may not actually result in any additional gas being brought to market if the costs of producing and transporting it are beyond the willingness of potential customers to pay for it.

In the event that a 'use it or lose it' policy does bring additional gas to the market, there is no assurance that it will be channelled to domestic users, if gas companies can receive higher returns by exporting it instead.

The Commission concluded in 2009 (PC 2009) that the introduction of 'use it or lose it' mechanisms, in an attempt to bring forward exploration and production, might be counterproductive:

> An automatic 'use it or lose it' policy is a blunt instrument subject to significant risks of regulatory error and may result in the perverse long-term outcome of both reduced exploration and reduced commercialisation of resources. (p. 95)

Limits placed on the ability of companies to make commercial decisions relating to their tenements could blunt the incentive to invest in exploration activity (PC 2009) and eventually lead to a level of gas supply lower than the level that would have prevailed without the 'use it or lose it' mechanisms. In this sense, a condition such as a 'use it or lose it' mechanism could actually harm the users the mechanism is aimed to assist.

Domestic gas reservation policies

Structural adjustment in the eastern Australian gas market

In its 2015 research paper the Commission observed that the linking of the eastern Australian gas market to the Asia–Pacific market has created an opportunity to receive a higher return for domestically produced gas. The Australian community benefits from the generation of higher capital and labour income, and from a higher flow of royalty and taxation revenue to governments.

However, the opening of the export market also had the effect of linking the domestic gas price to (higher) world prices, affecting domestic gas users.

The Commission noted that policies seeking to counteract the pressures from structural adjustment arising from the opening of the export market would introduce barriers to more

efficient gas markets, imposing net costs on the community. In particular, preventing gas producers from taking full advantage of an opportunity to receive a higher return from exporting gas produced in Australia, and instead supplying gas to the domestic market at a producer price below export parity, effectively represents a net loss to the community.

The effects of domestic gas reservation

While various approaches to domestic gas reservation have some differences in design, the general economic mechanisms underpinning them are similar. In the short term, the Commission observed that reservation would divert gas from liquefied natural gas (LNG) production (that would otherwise be exported), to domestic users. With a sufficiently large domestic supply requirement, this would place downward pressure on wholesale gas prices for domestic users, while imposing a cost on producers that supply gas to the eastern market. This in turn would distort resource allocation, with economic losses compounding over time. Domestic gas reservation would encourage investments in gas-intensive (and related) industries on the basis of gas prices that are below levels that would have otherwise prevailed in the market.

Notwithstanding these resource allocation costs, the Commission found that domestic gas reservation may ultimately be ineffective in preventing wholesale gas prices for domestic users in the eastern market from rising over time. By reducing the return on new supply sources, reservation would decrease incentives to invest in gas exploration and development. The gap created between domestic prices in the eastern market and export prices likely under such a policy would especially weaken incentives to invest in projects that would produce solely for the eastern market, given that all of a domestic project's production would be sold at prices below the market level.

Coal seam gas exploration and production restrictions

Over the past decade, the debate and regulatory policy developments in the eastern Australian gas market have largely centred around managing the environmental and health and safety effects of the exploration and production of coal seam gas (CSG).

There have been community concerns that the water-intensive nature of CSG exploration and production would deplete groundwater resources and have adverse consequences for water tables. Some members of the community are also concerned about the risks of groundwater contamination, the disposal of produced water and other by-products, as well as the subsequent rehabilitation of land disturbed by exploration and production.

These considerations prompted the NSW Government to introduce a freeze on new CSG exploration licences and on CSG production in water catchments. The NSW Gas Plan subsequently announced the extinguishment of exploration licence applications and government buyback of existing gas exploration licences. The freeze on exploration has

since been lifted, but no new licences have been granted. The NSW Government has also introduced CSG exclusion zones to make residential areas 'off limits' to new coal seam gas activity. The exclusion zones ban new coal seam gas activity within a two-kilometre buffer around existing and future residential areas and within critical industry clusters.

In Victoria, the *Resources Legislation Amendment (Fracking Ban) Bill 2016* permanently bans all onshore unconventional gas exploration and development, including hydraulic fracturing and coal seam gas and extends the moratorium on conventional onshore gas exploration and development to 30 June 2020.

Other jurisdictions have also not been immune from the pressure to curtail or stop CSG activities.

Both the costs and the benefits of policies to reduce CSG activities need to be considered

Concerns about the potential environmental and public health effects of CSG activities deserve proper consideration. There are several tools through which these concerns could be addressed — moratoria or bans are but one of them. Whatever policy tool is implemented, the Commission has noted that the expected benefits from reducing the environmental and public health risks from CSG activity should be assessed against the expected costs to the gas industry, gas users and the Australian community as a whole.

The Commission observed that, while the restrictions on CSG production in New South Wales and Victoria address concerns about the potential risk to the environment and public health, they also impose a constraint on the supply of gas in the eastern Australian gas market and may lead to the development of more expensive sources of supply than would otherwise be the case. Where this occurs, a cost will be imposed on some or all of the gas industry, domestic gas users and the broader community. The form that these costs take and their distribution depends on a number of factors and could change over time. Where production restrictions reduce gas production but do not affect the quantity of gas exported (for example, where all export commitments are already locked-in through long-term contracts) the effect will be largely felt by gas users within the eastern Australian gas market through higher prices.

Consistent with these observations, in 2018 the Australian Competition & Consumer Commission (ACCC 2018, p. 20) suggested that:

> Future pricing of gas in the Southern States depends on the cost of new gas supply. Domestic gas consumers might pay $2–4/GJ less for gas if lower cost gas in significant quantities is produced in the Southern States, and if there is more competition in its supply (rather than gas being transported from Queensland or imported from overseas).

In the longer term, reductions in production resulting from the production restrictions could be reflected in lower gas supply volumes (including for export) and, as a consequence, reduced royalty and taxation revenue. The gas industry and the broader community would bear the brunt of those costs. The costs would be greater if LNG prices are high enough to

create the incentive for a significant increase in production on the east coast, but gas producers are prevented from doing so by the moratoria or bans.

Sound risk management

The uncertainty about adverse environmental and health outcomes related to CSG activities requires governments to be cautious when determining the regulatory settings. However, the precautionary principle,[1] which is found in some legislation, can be a difficult concept to apply in practice — a level of risk that may be acceptable to one person, may be less so to another. Further, no activity can be risk free, and any type of land use, including agriculture and extraction of any sub-surface resources, is likely to create some environmental consequences, not all of them foreseeable at the outset. The avoidance of a particular risk on the basis of the precautionary principle may lead to a more significant risk elsewhere, causing greater harm (such as shifting activities to locations with less intensive monitoring and regulation).

Sound risk management recognises that there are trade-offs in reducing risk. Crucially, the burden of regulation and supervision should be consistent and coherent with the risks of the activity. In 2015 the Commission noted (PC 2015) that there was some evidence that CSG activities were required to meet a higher standard than other activities. Applying inconsistent risk management standards across activities could lead to distortions in favour of higher risk activities that are subject to a lower level of regulatory oversight. The scientific evidence on CSG suggests that the technical challenges and risks can be instead managed through a well-designed regulatory regime, underpinned by effective monitoring and enforcement.

References and further information

Further information is available on the Commission's website at www.pc.gov.au.

ACCC (Australian Competition & Consumer Commission) 2018, *Gas inquiry 2017-2020 Interim report*, Text, July, Canberra.

Hogan, L. 2003, *Australia's petroleum resource rent tax: an economic assessment of fiscal settings*, ABARE eReport, 03.1, Prepared for the Department of Industry, Tourism and Resources, Canberra.

PC (Productivity Commission) 2001, *Cost Recovery by Government Agencies*, Report no. 15, Canberra.

[1] There exist several definitions of the precautionary principle, the most frequently quoted one is formulated in Principle 15 of the *Rio Declaration on Environment and Development, 1992*: 'In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation'.

—— 2009, *Review of Regulatory Burden on the Upstream Petroleum (Oil and Gas) Sector*, Research Report, Canberra.

—— 2015, *Examining Barriers to More Efficient Gas Markets*, Commission Research Paper, Canberra.