

THE DAVID HUME INSTITUTE



DHI/ SCDI Energy and Constitutional Change Conversation - Oil and Gas

John Paterson

Greg Gordon

May 2013

Research Paper No. 9/2013

The David Hume Institute
26 Forth Street
Edinburgh EH1 3LH

© The David Hume Institute 2013

**DHI/ SCDI Energy and Constitutional Change
Conversation - Oil and Gas**

John Paterson

Greg Gordon

May 2013

Foreword

We at the David Hume Institute were delighted to be awarded funds, in conjunction with Professor Charlie Jeffery of the University of Edinburgh, by the Economic and Social Research Council to organise four ‘conversations’ on issues related to constitutional change in Scotland. Previously we have published a number of research papers related to the first two conversations; (i) macro-economic policy issues and financial sector oversight and regulation and (ii) social security and welfare under alternative constitutional settlements. We are now very pleased to be able to publish the papers for our third conversation – on a range of energy-related issues. On this topic we have also benefitted much from co-operation with the Scottish Council for Development and Industry (SCDI). The fourth will be on competition policy and regulation, for which we have the full support of the Scottish Government. All four will be completed by end May 2013.

In each of these conversations we have sought papers from a range of informed and interested parties, drafts of which were discussed at a ‘Chatham House Rule’ seminar before being finalised and published in advance of a full and open seminar. For the energy conversation the round table was held at the Royal Society of Edinburgh on 18th March and the seminar will take place, also at the RSE, on 7th May. We are delighted now to make these papers available.

For the round table we initially commissioned three papers. One, by Professor Mark Schaffer and colleagues at Heriot Watt University covered the evolving global; energy landscape; one by Professor Peter McGregor and colleagues at Strathclyde covered primarily energy topics; and the third by Professor John Paterson and Greg Gordon from Aberdeen University covered oil and gas issues.

However, we determined at the round table that it would be most valuable to have a separate paper on consumer matters, and we were delighted that Patricia McAuley of Consumer Focus Scotland agreed to produce such a paper, in liaison with interested parties at Which?

There is also a fifth paper of significant interest and definite relevance, produced by and separately published by SCDI. This is available at http://www.scdi.org.uk/pi/2013/SCDIFutureScotlandApr13_Energy_web.pdf

All of the papers’ authors will be with us at the seminar, where we will also benefit from an introduction from Dr Andy Kerr of the University of Edinburgh. As always with our seminars, there will also be a full question and answer session, with the authors involved.

We at DHI very much hope that these papers, along with the debate at the seminar and other elements of the conversation, will assist to inform the policy debate on an evidence-based, objective and sceptical manner. However, while commending the papers to your attention, it is as customary necessary for me to stress that the Institute itself has no views on any of the matters discussed.

Jeremy Peat
Director
David Hume Institute

Oil and Gas

John Paterson and Greg Gordon

EXECUTIVE SUMMARY

- Despite being well past peak production, the oil and gas industry makes a significant, though not always widely-understood, contribution to the UK economy—for example, paying a quarter of all corporation tax collected in 2011-2012. Assuming favourable conditions, currently high levels of investment can be sustained and production continued for decades to come.
- The maturity of the UK Continental Shelf nevertheless presents challenges which have the potential to reduce the longevity of production. Ageing infrastructure, reduced probability of large finds, increasing focus on technically more challenging reservoirs, competition from frontier areas elsewhere offering greater returns on investment—factors such as these require sensitive handling to encourage necessary investment.
- DECC and its predecessors have a good track record of working cooperatively with industry to identify and respond to such challenges with imaginative adaptations to licence forms and initiatives designed to ensure that assets are in the hands of those best able to make efficient use of them in order to maximise economic recovery.
- The Treasury, on the other hand, has not until more recently always demonstrated a similarly sensitive touch. The Supplementary Charge on Corporation Tax has been widely seen as a disincentive to investment whereas the recent developments relating to decommissioning costs have been read as an indication that there is finally better understanding of the importance of removing unnecessary uncertainties.
- The independence debate introduces a note of uncertainty to the industry at a time when it otherwise senses a stabilisation of its relations with government. Whatever the outcome of the referendum, it will be incumbent on government to read the developing picture of the maturing continental shelf carefully if long-term investment and production are to be secured. The temptation to regard the industry as a cash-cow to meet short-term needs will be strong, but should be resisted.
- Among the uncertainties requiring to be resolved in the event of independence will be the question of the international maritime boundary, the location of which will determine the division of hydrocarbon assets between Scotland and the remaining United Kingdom. International law provides procedures for resolving this issue rather than a clear answer. Negotiation could be protracted. Any reference to a dispute resolution mechanism could delay a final answer for years. The area of the continental shelf potentially adversely affected by the resulting uncertainty will be larger or smaller depending on the scale of rival claims. Joint development would be a possible means of dealing with that matter in the interim.
- The significance of the oil and gas industry would be even greater in the context of an independent Scotland. It could accordingly become the principal concern of government policy. The extent to which existing policy could be changed in relation to issues such as licensing, taxation, decommissioning, and health, safety and environmental regulation may, however, be limited insofar as adaptations perceived as problematical by the industry could have detrimental effects on investment.

A future Scottish Government in the context of independence may, however, see opportunities to improve the investment climate for the industry—albeit that economic circumstances may impose limits on this ambition.

- Whichever government has responsibility for the industry in the period following the referendum will face a significant regulatory burden. The reasons for this state of affairs are manifold and include: the increasing number of new entrants and smaller actors on the continental shelf as a function of the maturity of the province; extending the life of ageing infrastructure to maximise economic recovery and avoid stranded reserves; despite such efforts, the inevitable ramping up of decommissioning projects in the years ahead; developments in health, safety and environmental regulation in the post-Macondo era, not least driven by the EU.
- New Scottish regulatory authorities would be engaging for the first time in these matters and would have to quickly assimilate significant quantities of historic data. These regulators would obviously feel the above challenges to a greater extent, and may face particular complexity if also asked simultaneously to implement modified policies. The task would not be impossible, and may legitimately be seen as an opportunity for positive regulatory innovation. But the scale of the challenge and in particular the levels of expertise and resource required should not be underestimated. The implications of adding further uncertainty to the picture should also not be ignored.
- Consideration of the industry's future post-referendum should also include the opportunity offered by the globally unmatched concentration of expertise across all disciplines, particularly in the North-East of Scotland but throughout the UK. As production on the continental shelf declines, the opportunity nevertheless exists to cement the industry in its current location and create a hub for operations elsewhere in the world. This will require early consideration of the infrastructure required to allow ongoing local development and global projection.

INTRODUCTION

Importance of oil and gas to the economy and the size of the prize

The significance of the oil and gas industry to the economy of the UK is not always fully appreciated. Perhaps for reasons of geography, with the industry largely focused in the north-east of Scotland and the large-scale operations located offshore and out of sight of land, there is a noticeable lack of understanding of its continuing scale and contribution, even today when the level of production is well past the peak of around a decade ago.

The contribution made by the industry is multi-dimensional, covering security of supply, balance of payments, capital investment, taxation and employment. As at 2011, production stood at 656 million boe, making the UK the second largest producer of oil in Europe and the third largest gas producer. This was sufficient to satisfy nearly half of the UK's primary energy demand, 68% of oil demand and 58% of gas demand.

The total contribution of the industry to balance of payments in 2011 was £46 billion, with £40 billion attributable to production and the remainder to the supply chain. At a time of challenge for economic growth, the oil and gas industry was the largest single investor and made the largest contribution to national gross value added out of all industrial sectors of the economy.

At a similarly challenging time for the Treasury, the oil and gas industry paid almost a quarter of all corporation tax received in FY2011-2012 at £11.2 billion on profits from production. The supply chain paid some £6 billion in corporate and payroll taxes.

In terms of employment, some 440,000 jobs may be supported by the oil and gas industry. Of these, a relatively small number are in the large operating companies and contractors (32,000) and the largest single group are employed by supply chain businesses (207,000). The remaining 200,000 are divided equally between jobs induced by the economic activity of the operator, contractor and supply chain employees and exports of goods and services.

The ongoing importance of oil and gas is perhaps also poorly understood. Thus, even if the target of 15% for the contribution from renewable energy by 2020 is met, 70% of the UK's primary energy demand in that year will be met by hydrocarbons. Assuming investment can be sustained, production from the UKCS could continue to meet around half of the UK's oil and gas demand at that time.

In terms of the likely future contribution, while some 41 billion boe have been produced from the UKCS so far, anywhere between 15 billion boe and 24 billion boe remain to be recovered. There are, as a consequence, many years of production left on the UKCS. In terms of capital investment, business plans as at early 2013 reveal some £100 billion of planned spending, with £44 billion already approved. Even when production ceases, as is progressively occurring as reservoirs are depleted, the activity generated by decommissioning obligations will make a further significant contribution to the economy, with total expenditure estimated at around £30 billion.

The significance of the industry to the economy of the UK is clear, but the precise scale of the ongoing contribution will depend on a number of factors including the price of oil and of gas and the tax, licensing and regulatory regime.

Factors such as these will determine the attractiveness of the UKCS for investment in the context of increasing competition for scarce capital from a range of attractive alternatives, in both frontier provinces and other maturing provinces elsewhere in the world.

As matters stand, the most recent indications are that the UKCS remains attractive and, indeed, has perhaps become more attractive in the recent past as a result of greater certainty in relation to taxation and decommissioning costs. Thus, drilling activity is forecast to increase after a relatively depressed period. If all planned wells are drilled, then the period from 2013-2015 will be represent the most active period of drilling for a decade and a half. This, in turn, offers the prospect of improved production levels in future. More reserves are considered to be economically viable than has been the case in the recent past, as the more stable tax regime offers greater clarity to investors on the balance between risk and reward. Reflecting this new confidence, approval was sought for twice as many projects in 2012 as in 2011. Investment increased from £8.5 billion in 2011 to £11.4 billion in 2012 and is forecast to increase to £13 billion in the current year. Similarly, the industry continues to create employment, with some 6,000 new posts announced in the second half of 2012 alone. Given the general state of the economy and of other industrial sectors, these figures are all the more remarkable.¹

To this picture must also be added, of course, the question of the referendum on Scottish independence. It is no exaggeration to suggest that oil and gas (but particularly oil, given geographical realities) figure prominently in practically every discussion of the issue. Given the scale of the industry's contribution to the UK economy discussed above, it is not difficult to understand why – the more so when it is realised that were UKCS assets to be divided along an international maritime boundary following the line of the current administrative division of responsibilities between Westminster and Holyrood,² then more than 85% of future production would accrue to Scotland, in no small measure due to the presence of the Orkney and especially the Shetland Islands which greatly extend the continental shelf accruing to the coastal state.

In greater detail, following the assumptions and projections of Kemp and Stephen, 98.8% of total oil production and 60% of total gas production for 30 years from 2011 would come from what would be the Scottish sector of the UKCS. Over the same period, 86.8% of total hydrocarbon production would come from this sector. In terms of development expenditure, this would amount to a total of £134.5 billion for the UKCS with some 91.5% of that taking place in the Scottish sector. The picture is even more striking for operating expenditures with a total figure of £173.1 billion for the 30-year period and some 96% attributable to the Scottish sector. It comes as no surprise; therefore, that 86.1% of decommissioning expenditure is forecast to be made in the same sector.³

¹ Oil and Gas UK, UK Economic Report 2012, <http://www.oilandgasuk.co.uk/cmsfiles/modules/publications/pdfs/EC030.pdf>; Activity Survey 2013, <http://www.oilandgasuk.co.uk/cmsfiles/modules/publications/pdfs/EC037.pdf>. DECC, Oil and Gas Production Projections, 28 February 2013, available online at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/136390/production_projections.pdf

² Other bases for division are possible: see further the discussion below under the heading “Division of Assets”

³ Alex Kemp, 'North Sea Oil and Gas'. in A Goudie (ed.), *Scotland's Future: The Economics of Constitutional Change*. Dundee University Press, 2013, pp243-265.

While projections relating to future tax revenues accruing to an independent Scotland are less precise, not least because of the need to assume that the historical volatility of oil prices will continue to be a feature of the market, there is no doubting that they are likely to be substantial, with estimates for the period from 2012-13 to 2017-18 ranging from a total of over £30 billion to over £57 billion.⁴

By any analysis, therefore, the oil and gas industry is of fundamental economic importance to the UK at present and will remain of fundamental importance for decades to come, irrespective of the outcome of the referendum. The scale of its contribution to security of supply, balance of payments, capital investment, taxation and employment is considerable on a UK scale but would be all the more material in the context of an independent Scotland with a population one-tenth the size. By the same token, the loss of the vast majority of that contribution to the remaining United Kingdom (rUK) would not be a matter of indifference, especially if the gloomier predictions for growth in the rest of the economy prove to be correct.

Whatever the gains and losses that may occur in the event of a division of the UKCS in the context of a vote in favour of independence, it is imperative to realise that all of the projections mentioned above proceed on the assumption that there is a seamless transfer of responsibility for oil and gas from Westminster to Holyrood, that all licensing and regulatory functions are taken over without delay, and that all questions relating to stability of the tax regime and an ongoing favourable investment climate are answered in the affirmative. A future independent Scotland might well, of course, make a virtue of being an even more attractive investment proposition, but even were that to be the case, there are a significant number of technical, legal and regulatory questions that would need to be resolved in relatively short order if the currently upbeat outlook for the industry were to be sustained. And it is surely not unreasonable to assume that the rUK would seek to retain as large a share of offshore assets as possible, thus perhaps making a claim based on a boundary that runs far to the north of the existing administrative boundary mentioned above and opening up a negotiation or even a dispute that could last for years. As industry reaction to the tax instability of the past decade (notably in relation to the Supplementary Charge on Ring Fence Corporation Tax) has amply shown, any injection of uncertainty into the often very large investment decisions that require to be made can have immediate, tangible and long-lasting effects.

This paper seeks to consider the principal issues that would require to be resolved and to highlight where such uncertainty might arise and what would be required to alleviate it. The paper offers no view one way or the other on the question of whether independence would be favourable or unfavourable to the industry, but focuses on the acknowledged and widely-observed phenomenon that uncertainty in the investment environment for the oil and gas industry has adverse effects on the scale of investments and by extension on levels of production, rates of employment, tax revenues, security of supply and balance of payments.

⁴ See Scottish Government, Oil and Gas Analytical Bulletin, March 2013, available online at <http://www.scotland.gov.uk/Resource/0041/00416072.pdf>

The Challenge of Maturity

The UKCS was opened up as an oil and gas province by the efforts of major oil companies working together in joint venture consortia while holding upstream petroleum production licences granted by the state. Some of the earliest fields to be developed were among the largest that have been discovered on the UKCS.⁵ Many of the major elements of infrastructure necessary to transport oil and gas from the point of discovery to shore were built to service these fields.

While some of these early fields are approaching the time for decommissioning,⁶ others will continue to produce for years to come, albeit at levels generally falling short of that which they achieved in their prime.⁷ As these fields' reserves dwindle and their production rates drop, they start to become less attractive prospects for the major oil and gas companies. These companies' expertise and interest often lies in higher-risk (but potentially far more rewarding) exploration activities, either elsewhere within the UKCS (for instance in the comparatively under-developed "frontier" areas West of Shetland and West of Scotland) or in other oil and gas provinces altogether. Mature producing fields may, however, very well be of great interest to independent oil and gas companies with different business models, aptitudes⁸ and appetites for the taking of commercial risk. As a result, the major companies tend, as a province matures, to wish to re-align their interests by divesting themselves of at least some of their mature fields. The independents provide willing buyers for these assets.

The entry to the UKCS of a wider range of players, some of whom do not have the same degree of available capital reserves of the major players, brings with it a degree of commercial and regulatory risks.⁹ There are benefits, too, that come from broadening the pool of players. The incoming independents have often been prepared to invest heavily in their new assets and, as a result, have been successful in increasing production levels and rates of recovery.

The UK Government's principal stated policy objective is for as much as possible of the oil and gas in situ within the UKCS to be produced as is consonant with environmental protection and safety considerations.¹⁰

⁵ I.e. fields such as Forties, Brent, Ninian, Beryl and Piper. For a graphical illustration of the contribution made by these fields to UK oil production, see OGUK, Economic Report 2011, available at <http://www.oilandgasuk.co.uk/cmsfiles/modules/publications/pdfs/EC026.pdf>, p 16, Fig 15.

⁶ E.g., Brent. For information on Shell's decommissioning plans for Brent, see <http://www.shell.co.uk/gbr/aboutshell/shell-businesses/e-and-p/decommissioning/brent-field-decomm-studies/status.html>.

⁷ Forties, for instance, continues to be a productive and profitable field. Originally operated by BP, it has, since, 2003, been operated by Apache.

⁸ As a crude generalisation, the majors are often heavily focussed upon exploration while the independents commonly have particular expertise in maximising production from established fields.

⁹ The risk of insolvency, for instance, requires to be given greater consideration than before. This is relevant both to other commercial actors within the industry and to the government, which may find itself liable for e.g. decommissioning expenses in the event of failure of an oil company: see e.g. M Hammerson, *Upstream Oil and Gas Law*, (Globe 2011) pp.452-453.

¹⁰ See e.g. DECC, *Guidance on the Content of Offshore Oil and Gas Field, Development Plans*, available at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/15558/reg-offshore-guide.doc, para 2.1

In implementing this policy, DECC is keen for ‘the right assets to be in the right hands’; thus DECC has been supportive of the re-alignment of interests along the lines set out above. The Government has been sufficiently interested in removing barriers to investment that it has developed the “promote licence”. This licensing device contains certain relaxations to standard licensing terms designed to provide the very small player with an opportunity to conduct desk-based appraisal work prior to seeking outside investment to permit drilling or other exploratory work to be undertaken.¹¹

DECC has also been keen to ensure that potentially productive areas do not lie fallow and unused, and that “misaligned joint ventures”¹² do not act as a barrier to optimal recovery of oil and gas from within licensed areas. These imperatives have given rise to the fallow area and stewardship initiatives. The idea that oil companies might secure offshore acreage but then, for a variety of reasons, either not explore it or, having explored and found oil or gas, not move promptly to develop it appears not to have occurred to the initial architects of the UKCS licensing regime.¹³ However by the early 2000s it became apparent that there was a significant amount of fallow acreage in the UKCS, a situation contributed to by a licensing regime which had historically granted licences on long terms, at low cost, with relaxed relinquishment obligations and limited scope for the state to force the pace of operations. The result was the fallow areas initiative, an extra-statutory scheme which sought to implement a “use it or lose it” policy, at least in respect of areas where no good reason could be shown for the lack of activity. In such cases, companies were told to either to carry out a new work programme, relinquish their licence or sell it on to someone else who would carry out operations. The initiative is said to be underpinned by the minister’s powers under the licence, but it is not entirely clear that the licence provisions support the full extent of the scheme.¹⁴ That said, the scheme has been a conspicuous success in practical terms. The stewardship initiative, too, is directed towards maximum recovery of oil but deals with the more subtle situation where, while at least some hydrocarbons are being produced from a field, the rate of production is less than one might have expected due to disagreements between the consortium parties. This scheme is directed towards identifying comparatively under-productive licence areas and applying pressure in order to ensure that they start to produce in accordance with industry norms. Again, licence powers are said to underpin this scheme, but arguably they provide an even less sure foundation for stewardship than they do for the fallow scheme.¹⁵ Overall, this initiative, too, has been adjudged a success, with DECC generally having been held to have implemented the scheme with considerable restraint and common sense. Indeed, some industry players have positively welcomed the scheme, viewing it as a useful for persuading recalcitrant joint venturers to invest appropriately in the shared asset.

¹¹ For a discussion see G Gordon, *Petroleum Licensing*, in Gordon Paterson & Usenmez, paras 4.62-4.68.

¹² I.e., joint ventures which stagnate because not all parties are happy to proceed with operations at the same rate.

¹³ T Daintith, *Discretion in the Administration of Offshore Oil and Gas*, (henceforth “Daintith, Discretion”) at para 4104.

¹⁴ See G Gordon and J Paterson, *Mature Province Initiatives*, in Gordon Paterson & Usenmez, paras 5.12-5.34.

¹⁵ See G Gordon and J Paterson, *Mature Province Initiatives*, in Gordon Paterson & Usenmez, paras 5.35-5.49.

Increased maturity has its benefits and draw-backs. As a province matures, more comes to be known about its geology and characteristics. Thus exploration becomes easier and the risk of an exploration well failing to find oil is somewhat reduced, while a network of infrastructure develops which can be used (“tied into”) to facilitate new oil and gas operations. These are positive features. On the downside, compared to the elephantine developments which characterised the early days of the UKCS, new discoveries (at least in the established areas of the North Sea) tend to be comparatively small. Recent discoveries in the mature sectors of the UKCS have tended to be made by way of satellite developments. These developments are heavily dependent upon the availability of spare capacity in nearby host infrastructure. For so long as capacity in such infrastructure is available, and for so long as long as oil-price remains reasonably high and the cost of operations can be contained,¹⁶ such developments are economic. While individually these fields, when compared to the giant first generation fields, produce comparatively little profit for the industry or tax revenue for the state, cumulatively they still make a significant contribution to overall production on the UKCS. Neither should it be thought that very large finds are no longer possible, even within the North Sea. The Buzzard field, for instance, found in the Central North Sea in 2001, was a very substantial find which regularly produces in excess of 165,000 barrels of oil per day and has an estimated total of recoverable reserves of around 550 million barrels of oil. In more recent times there was considerable initial excitement about Catcher, another Central North Sea field, discovered in 2010; while this has cooled somewhat, and its reserves estimate has been down-graded to between 40 and 80 million barrels of oil,¹⁷ the find is still sizeable.

Outside of the mature part of the UKCS, some discoveries to rival those of the early days of the North Sea industry have been made within the frontier areas West of Shetland.¹⁸ There is good reason to believe that more such discoveries will be made there and elsewhere on the Atlantic Margin. Special petroleum licences with longer initial terms and reduced licensing fees (“frontier licenses”) have been developed by DECC in consultation with the industry to encourage the opening up of hitherto undeveloped parts of the UKCS.¹⁹ The finds in these areas mean that production is projected to continue beyond 2050,²⁰ albeit not at the levels seen when the industry was at its peak.

New discoveries aside, new technologies are making it possible to develop fields which have been known about for some time but from which production was not initially possible.

¹⁶ The UK is a high-cost province. Since the launch of the Cost Reduction in the New Era (CRINE) initiative in the 1990s, the industry has worked hard to e.g. standardise supply-chain contracts in order to reduce unnecessary expense. For further information, see the website of CRINE’s successor organisation, LOGIC: <http://www.logic-oil.com/>.

¹⁷ Premier Oil, *Press Release*, 8 February 2011, available at <http://www.premier-oil.com/premieroil/media/press/drilling-update-catcher-north>.

¹⁸ This area is presently estimated by DECC to hold 15-17% of the UKCS’s remaining reserves: DECC, *The Oil and Gas activities of the Energy Development Unit*, 2011, available at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/48174/2829-oil-and-gas-activities-of-the-edu.pdf. Depending on the outcome of ongoing exploration, this figure may in time require to be adjusted upwards.

¹⁹ For a discussion see Gordon, “Petroleum Licensing”, in Gordon, Paterson and Usenmez, *Oil and Gas Law: Current Practice and Emerging Trends*, 2nd Ed, DUP 2011 paras 4.54 to 4.61.

²⁰ Alex Kemp, 'North Sea Oil and Gas'. in A Goudie (ed.), *Scotland's Future: The Economics of Constitutional Change*. Dundee University Press, 2013, pp243-265para 11.6.

The Mariner field, for instance, which it is estimated will produce at a peak of around 55,000 barrels per day between 2017 and 2020 before declining, was discovered in 1982 but, as it is a heavy oil field, could not be developed until the advent of horizontal drilling and improved well completion techniques.²¹

The major oil companies have not generally divested themselves of the most significant pieces of infrastructure built to service the first-producing oilfields. While there are good business²² and regulatory²³ reasons for this, this means that the law permitting third party access to this privately-owned infrastructure needs to be robust if access is to be provided on fair and timely terms. The legal regulation of access to infrastructure will be further discussed below.

Access to Infrastructure

As has been noted above, the small fields which now generally characterise the majority of developments within the established part of what might become the Scottish Continental Shelf can only be feasibly developed if they are able to obtain access to third party infrastructure. A significant quantity of offshore infrastructure is now at or beyond the end of its design-life, a fact which, as we shall see, creates especial challenges for safety and environmental protection and contributes to insecurity in domestic energy supply and to the problem of volatility in tax revenues. Equally significant is the risk that the decommissioning of elements of currently existing offshore infrastructure is projected to lead to oil and gas fields which, had the infrastructure remained, would have been economically viable becoming non-viable.²⁴ The desire – on the part of both the state and the companies wishing to produce from these fields – to develop them while the infrastructure remains available to use means that this is an area where time would seem to be of the essence. One would therefore expect the state to have firm legal regulation in place and for the party seeking access to existing infrastructure to seek to use it to the fullest extent possible. However, the legal regulations directed towards ensuring access to infrastructure have, until recently, been very “light touch”²⁵ and been under-utilised, both the access-seekers and the Secretary of State himself.

Given the importance of the issue, one might expect this to be an area where the government of any future independent Scotland would wish to rapidly develop its own, more effective, regulatory regime. However, in this area - as in many others - Scotland’s room for manoeuvre is significantly curtailed by the legal situation it would inherit from the rUK.

²¹ The development of this field also owes something to the DECC’s fallow fields initiative, discussed elsewhere in this paper.

²² The infrastructure is the property of the companies who constructed it, a commercial asset with which (subject to any limitations imposed by law) they may do as they please.

²³ The question of who will bear liability for decommissioning is an issue which has had a significant bearing on industry practice.

²⁴ See e.g. Sean Rush, *Access to Infrastructure on the UKCS: The Past, the Present and a Future*, available at <http://www.memerycrystal.com/uploaded/Articles/other%20files/Access%20to%20Infrastructure%20on%20the%20UKCS%20-%20SR%20-%20Feb%202012.pdf>, pp 11 to 12.

²⁵ Ibid, p.16.

The offshore upstream pipeline system is neither in public ownership nor under the control of a common carrier tasked with the job of operating the pipeline system as an integrated whole. The infrastructure is instead in the ownership of either the companies who built it, or whichever oil company they have subsequently sold it on to. That said, the UK Government was, from the earliest days of production on the UKCS, aware of the fact that that third parties might require access to infrastructure. Since 1975, legislation has been in place which is aimed at providing an enforceable mechanism for providing third parties with a right to gain access to infrastructure which has adequate spare capacity and can receive their hydrocarbons without insuperable technical difficulty. The legislation envisaged that the parties would first attempt to negotiate terms for access to infrastructure but, if agreement proved impossible, the party seeking access would refer the matter to the Secretary of State for a determination of the parties' rights and obligations, which determination would become binding on both parties if accepted by the access-seeker.

The system has, however, been bedevilled with technical difficulty.²⁶ Access-seekers have been highly reluctant to seek a determination and, on the very rare occasions when they have done so, the Secretary of State has, due to concerns over his legal powers, shrunk back from issuing one.²⁷ From the mid 1990s onwards, this area has been characterised by a constant churn of activity, with numerous legislative attempts to improve the technical quality of the drafting, the promulgation of Ministerial guidance intended to foster confidence in the use of the Secretary of State's power to determine and a succession of Industry Codes of Practice directed towards facilitating negotiations by ensuring the timely provision of relevant technical and commercial information, encouraging good negotiation practice and attempting to resolve the problem of the shy applicant. These changes have secured some notable improvements,²⁸ but deals still take a very long time to complete and, even where deadlock occurs, there continues to be a reluctance to refer disputes to the Secretary of State, despite the access-seeker being under a notional obligation to do so.²⁹ This reticence has been caused in part by the fact that while the Ministerial guidance provides a significant amount of information on the processes that will be used in determining an application and the factors that will and will not be taken into account, it lacks concrete and detailed provisions about the mechanism that will be used to determine the key features of the deal, such as the throughput tariff and the risk-allocation provisions.³⁰

²⁶ See e.g. the discussion on the technical deficiencies that formerly attended the legal definition of "infrastructure" and "pipelines": U Vass, "Access to Infrastructure", in G Gordon and J Paterson, *Oil and Gas Law: Current Practice and Emerging Trends*, 2007, para 5.7.

²⁷ See the discussion of the Rochelle case in S Rush, *Access to Infrastructure on the UKCS: The Past, the Present and a Future*, available at <http://www.memerycrystal.com/uploaded/Articles/other%20files/Access%20to%20Infrastructure%20on%20the%20UKCS%20-%20SR%20-%20Feb%202012.pdf>, pp 29 to 30.

²⁸ As a result of the provisions contained in ICOP, it is now relatively easy to obtain information on matters such as the spare capacity ("ullage") present in any given infrastructure system, the system's entry specifications and the key features of the commercial deals done by parties relative to access to infrastructure. See e.g. Marathon Oil's ICOP information page http://www.marathonoil.com/Global_Operations/United_Kingdom/Brae_Area_ICOP/.

²⁹ See e.g. S Rush, *Access to Infrastructure on the UKCS: The Past, the Present and a Future*, pp.28-29.

³⁰ DECC, *Guidance on Disputes over Third Party Access to Upstream Oil and Gas Infrastructure*, 2012, available at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/70190/Guidance_on_Disputes_over_Third_Party_Access.pdf.

This matters because the different groupings within the industry fundamentally wish to see different things. Access-seekers frequently contend that the infrastructure owners wish too high a rate of return and are seek to apportion too much liability to the party seeking access. Infrastructure owners, by contrast, both accuse the access-seekers of under-pricing the commercial value of the infrastructure and resist the provision of what they perceive to be unrealistically low caps on liability set by reference to what the access-seeker can readily afford to pay, not by reference to the scale of loss that he might cause to the infrastructure owner's property. Access-seekers' fears that the Secretary of State might, in making a determination, favour the infrastructure owners' arguments and thereby establish an unwelcome precedent have led to a marked reluctance to ask the Secretary of State to use his power.

The Energy Act 2011 introduced a new provision, designed specifically to deal with the problem of the "shy applicant". Section 83 provides that the Minister may now issue a determination off of his own initiative, i.e. without the deadlocked dispute having been referred to him. On the face of it, this is a major change. However the apparently fundamental nature of the amendment to the law is somewhat undercut by the guidance which has been forthcoming on the circumstances in which the Minister will be prepared to use the power.³¹ It could also be observed that the fundamental nature of the Minister's task has not been affected by the change: it still finds itself acting as an arbiter between two commercial parties, each viewing the matter from contrasting and apparently irreconcilable standpoints. The difficulty of this task is not to be underestimated.

An independent Scotland would of course gain the legislative competence to address this issue. Satisfactorily resolving it would, however, be difficult. The existing property rights of the infrastructure owners impose significant limitations on what an independent Scottish government could achieve. Radical change in the form of nationalisation or the imposition of a common carrier scheme is theoretically possible but would inevitably give rise to claims for compensation.³² Even more subtle change could be problematic. Assuming the 2011 Act continued to apply but the Scottish authorities decided they would take a more interventionist approach to the powers that currently exist, a range of adverse consequences could follow. Large amounts of administrative time and effort could be tied up in the difficult process of making determinations, and legally defending them if they were challenged. This would seriously exacerbate the already significant regulatory capacity issues which will be discussed below. Additionally, while the production of a body of decisions would lead to greater certainty as a result of the production of a body of norms, greater predictability could create its own problems if a proper balance between the two respective sections of the industry was not struck. If the infrastructure owners perceived that the decisions made by the Scottish authorities did not permit them to make an adequate profit, premature decommissioning could follow. Conversely, if the authorities were too solicitous towards the infrastructure owners, access-seekers might find that certain developments became uneconomic.

Finally in this regard, it should be noted that in frontier areas where relatively little infrastructure has yet been built, the difficulties caused by established property rights have not yet fully crystallised.

³¹ *Ibid*, paras 37-38.

³² It would in any event appear to be foolish to nationalise any infrastructure that is approaching the time for decommissioning.

A small window of opportunity may exist for differential policy in those areas. However, in the West of Shetland, the construction of infrastructure is proceeding rapidly and even here it may soon be too late to readily adopt e.g. a common carrier approach.

CONSTITUTIONAL CHANGE: IMPLICATIONS, OPPORTUNITIES AND RISKS

Division of assets

While the division of liabilities as between a future independent Scotland and the rUK is beyond the scope of this paper,³³ that very significant debate is in no small measure predicated on assumptions made about the division of assets, not least oil and gas reserves. As a consequence, were there to be an independent Scotland, the question of the international maritime boundary with the rUK would be one of considerable importance. The presence of hydrocarbons means that the precise location of that boundary would not be a matter of indifference to either party: crudely expressed, a boundary line drawn more to the north would increase the amount of hydrocarbons accruing to rUK, whereas a boundary line drawn more to the south would increase the amount of hydrocarbons accruing to Scotland.

As matters stand, the UK territorial sea and continental shelf have already been divided for internal jurisdictional and administrative purposes. Thus, for example, it was necessary to establish which courts would enjoy jurisdiction were issues to arise in relation to offshore installations. To this end, a variety of earlier orders dealing only with specific areas were replaced in 1987 by more comprehensive arrangements in the shape of the Civil Jurisdiction (Offshore Activities) Order 1987³⁴ and the Criminal Jurisdiction (Offshore Activities) Order.³⁵ Similarly, at the time of devolution in 1999, it was necessary for reasons related to environmental protection and the administration of fisheries to delineate those parts of the territorial sea and continental shelf that would be treated as waters adjacent to Scotland and those which would not.³⁶

Controversially, in some eyes, there is a difference between the boundary coordinates mentioned in the 1987 Orders and in the 1999 Order such that the area subject to Scottish jurisdiction is less in the latter case. In other words, to use the crude terms mentioned above, the boundary in the latter Order lies further to the north and thus produces a smaller area subject to Scottish jurisdiction.

It is important to note, however, that the 1987 Orders were made under the Oil and Gas (Enterprise) Act 1982 (as well as under the Continental Shelf Act 1964) and confer jurisdiction on the civil and criminal courts respectively in relation to “relevant acts”, which are defined as “activities connected with the exploration [for], or the exploitation of the natural resources” under the seabed.³⁷

³³ For a recent discussion of the issues, see House of Lords, Economic Affairs Committee - Second Report of Session 2012-13, *The Economic Implications for the United Kingdom of Scottish Independence*, HL Paper 152, 10 April 2013, chapter 2.

³⁴ SI 1987/2197.

³⁵ SI 1987/2198.

³⁶ The Scottish Adjacent Waters Boundaries Order 1999, SI 1999/1126.

³⁷ ss22(2)(a) and 23(2)(a).

By contrast, the equivalent Orders dealing with civil and criminal jurisdiction in relation to offshore *renewable* installations which were passed in 2009 utilise the same boundaries as the 1999 Order insofar as they seek to reflect the division of powers in relation to such installations as between Westminster and the Scottish Ministers.³⁸

Accordingly, were there to be independence and the matter of the location of the international maritime boundary required to be resolved, existing boundaries drawn for internal administrative and jurisdictional purposes would not be determinative and could, indeed, provide arguments respectively for those seeking more northerly or southerly solutions—albeit interestingly that those specifically relating to offshore oil and gas installations would appear to suggest a more southerly boundary.

In any event, the question of the location of the international maritime boundaries under international law would be a matter in the first instance for the parties to seek to determine by way of agreement. In this regard, it is important to note that international law in the shape of the United Nations Convention on the Law of the Sea³⁹ takes slightly different approaches to the delimitation of the territorial sea and to the continental shelf. In the case of the former, Article 15 states that:

Where the coasts of two States are opposite or adjacent to each other, neither of the two States is entitled, failing agreement between them to the contrary, to extend its territorial sea beyond the *median line* every point of which is *equidistant* from the nearest points on the baselines from which the breadth of the territorial seas of each of the two States is measured...[Emphasis added.]

By contrast, in relation to the Continental Shelf, Article 83(1) states that:

The delimitation of the continental shelf between States with opposite or adjacent coasts shall be effected by agreement on the basis of international law...in order to achieve an *equitable solution*. [Emphasis added.]

There is no mention in Article 83 of the use of a median line or of the concept of equidistance, the emphasis rather appearing to be placed on the achievement of an equitable solution. Quite what would be regarded as equitable may look very different depending upon which side of the border the matter was viewed from, not least because of the presence of hydrocarbons and the fact that one could, at the extremes, for example, argue that equity demanded a delineation based on geographical extent or that it should reflect the difference in population between the two countries. More prosaically, however, delineation of the boundary could come down to the technical application of well-established methods related to parallel lines of latitude, perpendicular lines, or indeed equidistance itself.⁴⁰

³⁸ See the Civil Jurisdiction (Application to Offshore Renewable Energy Installations etc) Order 2009, SI 2009/1743, and the Criminal Jurisdiction (Application to Offshore Renewable Energy Installations etc) Order 2009, SI 2009/1939.

³⁹ Following independence, Scotland would not be a signatory to UNCLOS, the rUK being the successor state. There is, however, no reason to suppose either that Scotland would not choose to become a signatory or that it would be denied the possibility of doing so, but given that the International Court of Justice has opined that the UNCLOS delimitation provisions reflect customary international law, either scenario would not in any case affect the analysis in this section. See *Delimitation of the Maritime Boundary in the Gulf of Maine Area*, Judgement, ICJ Reports 1984, p246, para 94.

⁴⁰ Mahdi Zahraa, “Prospective Anglo-Scottish Boundary Revisited”, 12 *European Journal of International Law* (2001) 77-108.

Each of the approaches mentioned so far (by no means an exhaustive list) would produce a different outcome, not only in the location of the boundary, but crucially in terms of which hydrocarbon reserves fell within which jurisdiction. In such circumstances, it would not be difficult to imagine a situation where the two parties found it difficult to reach agreement—it would certainly be in the interests of the rUK to argue for the most northerly possible boundary given the gross disparity in reserves that would accrue to the two states on the basis of either of the existing internal administrative or jurisdictional boundaries. Article 83(2) provides in this respect that if “no agreement can be reached within a reasonable period of time, the States concerned shall resort to the [dispute settlement] procedures provided for in Part XV” of the Convention. Part XV provides for a range of possible procedures including both non-binding and binding options.

Were the matter to be referred, for example, to the International Court of Justice, it is interesting to note that after a period during which the court was criticised for deciding disputes in a way that made it difficult for the parties to foresee how a case might turn out, it has in more recent times sought to clarify its methodology. Basically put, the ICJ will now, all else equal, commence by drawing an equidistant or median line between the two states, then consider whether there are any special circumstances that would justify the modification of that line to achieve an equitable solution, and finally check that this provisional line does not lead to an inequitable result.⁴¹ But whereas the methodology may now be clearer, it is important to note that the ultimate outcome may be less so, as the court has fought shy of offering an exhaustive list of the circumstances it may take into account in its search for an equitable solution, stressing the need for flexibility to take account of the particular circumstances of any given case.⁴²

It is also important to note that any agreement on a boundary under Art 83(1) may be a long time coming. Given the importance of allowing the exploration for oil and gas resources or, in the case of Scotland and rUK, the continuing production of those resources, Art 83(3) obliges states to “make every effort to enter into provisional arrangements of a practical nature”, which in relation to hydrocarbons has most often been translated into action in the form of joint development agreements. Such agreements allow states to demarcate a zone within which development of the resources will be conducted jointly on the basis of an agreed formula, always on the understanding that such agreement “shall be without prejudice to the final delimitation”. This approach is widely used throughout the world, to the extent that some commentators have speculated that where states find it impossible to reach agreement on the delimitation of the boundary, they may find it more convenient to allow the joint development agreement to run for a considerable period of time, it perhaps proving simpler to agree on essentially commercial terms as opposed to matters of ultimate sovereignty.⁴³

⁴¹ *Maritime Delimitation in the Black Sea (Romania v Ukraine)*, ICJ Reports 2009, p61, paras 115-122.

⁴² For a discussion, see Speech by H.E. Judge Peter Tomka, President of the International Court of Justice, to the Sixth Committee of the General Assembly, 2 November 2012, <http://www.icj-cij.org/presscom/files/6/17156.pdf>

⁴³ Yusuf Mohammad Yusuf, “Is joint development a panacea for maritime boundary disputes and for the exploitation of offshore transboundary petroleum deposits?”, 4 *International Energy Law Review* (2009) 130-137

It has been suggested that one way of dealing with the multiple possible lines of delimitation between Scotland and rUK would be to demarcate a joint development zone that encompassed both the most northerly and the most southerly proposed boundaries and provided for the division of revenues generated within that area.⁴⁴ This would not be without its own complications—how easy would it be to agree the joint development zone if, say, the rUK made a claim to a boundary far to the north of any existing internal administrative or jurisdictional line?—but on the basis that it would be a provisional matter and that there could be balancing payments in either direction in the event of a final agreement, it might be a means of removing uncertainty that might otherwise have adverse effects of economic activity.⁴⁵

Finally, in relation to the international law relating to the demarcation of maritime boundaries, it is important to note that Article 83 concludes by stating at paragraph (4):

Where there is an agreement in force between the States concerned, questions relating to the delimitation of the continental shelf shall be determined in accordance with the provisions of that agreement.

It is interesting to speculate whether the ICJ, if it were called upon to reach a decision on the boundary between rUK and Scotland, would take cognisance of the existing Orders dealing with internal jurisdictional and administrative arrangements. Leaving on one side the question of whether these Orders strictly fall within the meaning of the term “agreement” or whether this paragraph could even properly apply to the situation under consideration here on the basis that the two states would not actually have existed when the Orders were made, and assuming that the presence of legal instruments setting out in detail the location of maritime boundaries would be a matter that the ICJ would not choose to ignore, would the court, for example, be impressed by the 1999 and 2009 orders, related as they are to the devolution settlement between Westminster and Holyrood and reflecting the functions of the Scottish Ministers? Or would it be impressed by the 1987 Orders, related as they are to the application of English and Scottish civil and criminal law specifically to the very oil and gas operations which are the key reason that the boundary is an issue in the first place?

Whatever the outcome of any agreement, provisional arrangement or dispute settlement procedure in relation to any future demarcation of the international maritime boundary between Scotland and the rUK, two points are of particular importance in the context of the present paper. Firstly, experience shows that such outcomes are not infrequently reached only after lengthy delays of several or even many years. Secondly, the uncertainty that would exist in the area between the boundaries claimed by each state (perhaps extending more than 100 miles along the international boundaries with Norway, Denmark and Germany, even if the discussion is restricted, as it need not be, to the difference between existing internal administrative and jurisdictional lines) as a result of any such delay could have profound effects on investment decisions in relation both to current operations as well as planned exploration and development.

⁴⁴ Mahdi Zahraa, “Prospective Anglo-Scottish Boundary Revisited”, 12 *European Journal of International Law* (2001) 77-108.

⁴⁵ For a more sceptical view on joint development agreements, see Gao Jianjun, “Joint Development in the East China Sea: Not an Easier Challenge than Delimitation”, 23 *International Journal of Marine and Coastal Law* (2008) 39-75.

While the focus of attention in relation to international maritime boundaries in the context of the independence debate tends to be on the division of assets as between Scotland and the rUK, there is also the question of what happens to those boundaries agreed between the UK and other neighbouring states, most notably Norway. Insofar as that boundary depends upon a bilateral treaty between the UK and Norway,⁴⁶ and is indeed supplemented by both the Frigg Agreement⁴⁷ and the Framework Agreement⁴⁸ dealing with cross-boundary resources, it is interesting to note that there is every possibility that the rUK would retain no boundary with Norway but would nevertheless presumably be the successor state.⁴⁹ There is every reason to expect that Scotland and Norway would simply re-establish the existing boundary and confirm the terms of the other agreements, but it would equally be open to them to renegotiate these matters, raising a potentially considerably greater area of uncertainty. There has long been speculation that the UK was too hasty in its agreement with Norway in 1965 based on the median line and could have pressed a more advantage claim based on the geography of the continental shelf.⁵⁰

Licences

Existing Licences

Oil and gas operations on the UKCS are carried out under and in terms of petroleum production licences granted by the UK government. These are part-contractual and part-regulatory instruments.⁵¹ They impose a range of obligations upon the licensee and, as they confer an exclusive right to drill for and produce petroleum from the licensed area, are also valuable assets. A licensee's interest in a licence may, subject to certain restrictions,⁵² be bought and sold. It is in reliance upon the security afforded by the grant of the licence that oil companies commit to expending millions of pounds on exploration, development and production activities. The contractual element of the licence provides a degree of stability: the licence cannot be changed without either the licensee's consent or the state having recourse to retro-active legislation.

⁴⁶ Agreement between the Government of the United Kingdom of Great Britain and Northern Ireland and the Government of the Kingdom of Norway relating to the delimitation of the continental shelf between the two countries, 10 March 1965.

⁴⁷ Agreement relating to the exploitation of the Frigg Field Reservoir and the transmission of gas there from to the United Kingdom (with annexes), 10 May 1976.

⁴⁸ Framework Agreement between the Government of the United Kingdom of Great Britain and Northern Ireland and the Government of the Kingdom of Norway concerning Cross-Boundary Petroleum Co-operation, 4 April 2005.

⁴⁹ For a discussion, see HM Government, *Scotland analysis: Devolution and the implications of Scottish independence*, February 2013, Cm 8554.

⁵⁰ See Alex Kemp, *The Official History of North Sea Oil and Gas*, Vol. I, Abingdon: Routledge, 2012, pp64-71.

⁵¹ For a full discussion of the legal nature of the licence, see T Daintith, "The Petroleum Production Licence in the United Kingdom", in T Daintith (Ed), *The Legal Character of Petroleum Licences: A Comparative Study*, 1981, 200 at 209ff. For a shorter account see G Gordon, *Petroleum Licensing*, in Gordon, Paterson and Usenmez, paras 4.12-4.13.

⁵² The Secretary of State's approval is required.

A large number of petroleum licences are currently in place between the UK as licensor and a host of oil companies as licensees. Some of the older licenses are either approaching the end of their term or have already exceeded it and are, for so long as production continues, being permitted to continue on a year to year basis. If an independent Scotland wished to institute significant changes to the terms of its petroleum licences it would, from a legal perspective, be relatively easy to achieve this in respect of this category of licences. It could either decline to issue a renewal, meaning that the licensed area would be surrendered back to the state and could potentially be re-granted, or to renew them subject to different or additional terms to those included at the time of the initial grant. However, such conduct on the part of the licensing authority would be likely to cause the industry great concern and could have a negative impact upon new investment. Unless a very significant advantage was perceived as flowing from this course of action, it is highly unlikely that an independent Scottish government would risk destabilising investor confidence in this way.

In addition to the category of licences described above, there are also very many licences which have been granted within the last decade or so and which - all other things being equal - would be expected to continue for years after any likely date of independence. Dealing firstly with the strict legalities of the situation, it is most unlikely that the courts would hold that an independent Scotland was legally bound by these licences. The party granting the licence would have ceased to exist. As a matter of law, this would seem to bring the licence to an end. There would seem to be no basis for the court simply substituting in the new state of Scotland as the licensor. Neither does there seem to be any possibility of the court permitting the licence to continue with the remaining part of the UK as the licensor, as here, the doctrine of frustration would be triggered: the contract would become impossible to implement, rUK having lost sovereignty (and therefore all rights relative to petroleum) over the Scottish Continental Shelf.⁵³ If, however, the Scottish government refused to grant to the pre-independence licensees a new licence in like terms to the old ones, the pre-independence licensees (who will have incurred significant expense in reliance upon the grant of licence and in the expectation that it would continue in force) might well be able to pursue a claim in unjustified enrichment.⁵⁴

Viewing the matter not from a contractual but from the international law perspective, much the same result would obtain. The principle of permanent sovereignty over natural resources would also mean that an independent Scotland would not be bound by licences granted by the UK.⁵⁵ International law would, however, require that compensation be paid.

Putting legalities aside for the moment, the practical reality of the situation is that it is most unlikely that an independent Scotland would either wish to, or in practical terms, could, do anything other than grant fresh licences to the pre-independence licensees on substantially the same terms as the licences which existed immediately prior to independence.

⁵³ The facts would seem to disclose a situation of supervening illegality: see e.g. *Cantiere San Rocco SA v Clyde Shipbuilding & Engineering Co* 1923 SC (HL) 105.

⁵⁴ For an account of how Scots law treats the analogous situation of cases concerning improvements to another's property, see R Evans-Jones, Seeking "Imposed" Enrichment in Improvements – Classifications and General Enrichment Actions in Mixed Systems: Scotland and South Africa 16 [2008] RLR 18. The facts would appear to bear at least a degree of similarity to those present in the Canadian case of *Pacific National Investment Ltd. v Victoria (City) (No. 2)* (2004) 245 DLR (4th) 211 (SCC).

⁵⁵ Permanent Sovereignty over Natural Resources, G.A. res. 1803 (XVII), 17 U.N. GAOR Supp. (No.17) at 15, U.N. Doc. A/5217 (1962).

There would seem to be very little to be gained by doing otherwise, and much to be lost. The possibility of compensation claims might “blight” such licences, making them unattractive investments. In any event, the benefit to Scotland of stripping licences away from one group of licensees who are already producing oil and giving them to another group of licensees is likely to be at best marginal, and would be greatly outstripped by the acute destabilising effect upon investor confidence that would be had by such conduct on the part of the licensing authority.

New Licences

An independent Scotland would be in a position to determine its own policy in relation to the terms and conditions of new petroleum licences, subject only to the constraints imposed by international law and by the EU.⁵⁶ What changes might an independent Scotland wish to make? The current UK petroleum production licence is broadly fit for purpose, but is by no means a perfect regulatory instrument. It is showing its age. Many of the most significant provisions in the current licence Model Clauses have not been changed since the first set of offshore Model Clauses were issued in 1964.⁵⁷ Many others have not been significantly changed since 1975: for instance, the licence powers designed to give the state a degree of control over the pace at which the licensee conducts operations were introduced at this time.⁵⁸ It is these licence provisions that provide the legal underpin to the fallow fields and stewardship initiatives discussed earlier. At that point, with the industry in its infancy, the state was at least as concerned about having the right to slow down production as it was about being able to force it to speed up.⁵⁹ Arguably, the fallow fields and stewardship initiatives – although thus far highly successful in practice – are therefore built upon a shaky legal foundation and could, in some instances, be susceptible to legal challenge.⁶⁰ Particularly given the importance of oil and gas to the economy of an independent Scotland, there might therefore be something to be said for the Scottish government instituting a review of the petroleum production licence in order to ensure that the current licence offers proper support for its policy objectives. However, as noted above, unless the industry was content to consent to the changes or the Government was willing to run the legal and political risks associated with passing retro-active legislation, any such changes would apply to future grants only. It is inherently unlikely that the industry would consent to material changes which it considered to be disadvantageous to its position. It is therefore likely that any new, revised licence containing e.g. enhanced or clearer powers to permit ministerial intervention in the pace or extent of offshore exploration and production would have to operate in tandem with a set of licences re-issued on “legacy” terms. Thus any such changes might well have the effect either of “shutting the stable door after the horse has bolted” or of amounting to a tacit admission that the government lacked confidence in the existing licences.

⁵⁶ These constraints would be relevant irrespective of whether Scotland continued to be a member of the EU from the moment of independence or whether it did not. In the former case, this would be so because Scotland would be legally bound by its membership; in the latter, although there would be no

⁵⁷ The model clauses incorporated into the earliest licences may be found in the Petroleum (Production) (Continental Shelf and Territorial Sea) Regulations 1964, Sched 2

⁵⁸ By the Petroleum and Submarine Pipelines Act 1975.

⁵⁹ See G Gordon and J Paterson, *Mature Province Initiatives*, in Gordon, Paterson and Usenmez, para 5.29.

⁶⁰ See G Gordon and J Paterson, *Mature Province Initiatives*, in Gordon, Paterson and Usenmez, paras 5.33 and 5.34 and 5.47-5.49.

On balance, it is likely that the Scottish government would choose not feel in a position to make significant changes to the terms even of new petroleum licences. Thus matters would be likely to roll on much as before.

Fiscal Regime

Oil and Gas Taxation: Volatility of Revenue

Unlike certain other countries,⁶¹ cash premium bidding (by which promising areas of acreage are auctioned to the highest bidder) is not a feature of the UK licensing system. Thus the Government does not obtain large lump sum payments when it holds its regular oil and gas licensing rounds. Licensing fees are comparatively low and make up an extremely small proportion of the state's take from oil and gas operations. As a result, the overwhelming majority of the UK's direct take⁶² from oil and gas operations has come from various forms of taxation on profit from operations. At times of high oil price, this approach has resulted in the realisation of very high levels of tax revenue. For instance, in 1984-1985, the hypothetical Scottish royalty and tax share from oil and gas operations on the UKCS would, taking the value of money at 2009-2010, have been in excess of £25 billion.⁶³ However, when oil price is low and operations less profitable, the converse has been true: between 1989 and 2001, the same hypothetical take fell markedly. It and was often between £1 billion and £2 billion, and never exceeded £5 billion.⁶⁴ At such times, not only do tax revenues fall in the short term but so too does investor confidence, often resulting in a decrease in exploration levels – and therefore a deferral of future production, and the profit and taxation thereon.

Oil price is essentially a function of supply and demand. While that much may be simple, both “supply” and “demand” are determined by the interaction of a complex set of political and economic factors. The level of supply committed by OPEC; the degree of political stability or instability in the principal oil producing regions; the extent to which unconventional sources of oil and gas will be developed, adding capacity to the market and possibly depressing price, and the pace of such development; the constraining effect upon oil and gas production of carbon emissions targets; and the success, or otherwise, of attempts to prove Carbon Capture and Storage as a viable means of “greening” oil and gas – all of these factors go towards supply. The general state of the world economy; the extent to which the developing world is successful in attaining its aim of providing greater energy security (and an increased standard of living requiring greater energy consumption) to its people; the degree of political and public acceptance of nuclear power; public acceptance of on- and off-shore wind-power; the extent to which unproven renewable energy sources come onstream to stand alongside the proven ones; even the question of whether there will be a great leap forward in something as apparently mundane as battery technology⁶⁵ – all of these factors go

⁶¹ This is a feature of e.g. the USA's offshore licensing system: see Daintith, *Discretion*, paras 9109 and 9110.

⁶² As has already been noted, the UK in addition obtains significant indirect gains from the oil and gas industry in the form of employment, tax on profits from service sector operations, etc.

⁶³ Alex Kemp, 'North Sea Oil and Gas', in A Goudie (ed.), *Scotland's Future: The Economics of Constitutional Change*. Dundee University Press, 2013, pp243-265, at para 11.5 Figure 2. This figure assumes a median line boundary with rUK.

⁶⁴ *Ibid.*

⁶⁵ Relevant because, if electricity can be stored more effectively, a significant step will be taken towards addressing the renewables industry's current Achilles heel of intermittency.

towards demand. Within a globalized market, few, if any, of these factors are capable of being materially influenced by the unilateral action of one medium-sized producer (such as the UKCS is, and an independent Scotland would be). Given the complexities involved, forecasting future oil price is, even in the relatively short term, a hazardous occupation. Long term price estimates are made within windows that are strikingly wide. For instance, the United States Energy Information Administration's long-term forecasts of oil price are based on three scenarios: low, reference and high. Even as early as 2020, these show a difference of some \$75 per barrel between the low and high scenarios, with the low scenario predicting a price around \$75 per barrel and the high scenario predicting a price of \$150. By 2040, the difference has moved out to almost \$150 per barrel, with price "flatlining" in the low scenario at \$80 while it rises, in the high one, to around \$225.⁶⁶

Oil price (and resultant profitability of operations) is not the only issue which may influence tax revenue. Production may be unexpectedly shut in due to a safety alert or oil leak on a platform or other critical piece of infrastructure. Such unplanned shut-ins may last for significant periods of time – possibly years, in the event of the worst case scenario of the destruction of a critical piece of infrastructure. Given the increasing levels of interconnectedness of the infrastructure network on the UKCS, the failure of a particularly important nodal point will not shut in one platform or even one field, but can effectively shut in a substantial part of the UKCS. For instance, a leak on the Cormorant Alpha platform earlier this year led to the temporary closure of the Brent pipeline. This temporarily shut in the 27 oil fields which feed into that export system and which between them produce around 10% of the UK's oil output.⁶⁷ When production falls, profit and therefore tax revenues are adversely affected. This particular risk factor has become more acute over time as a result of the increasing age of the infrastructure system, something which will be further discussed below in the context of health and safety.

As a result both of the inherent variability and unpredictability of oil price and periodic unplanned interruptions of production, while tax take from the industry can at times be very high indeed, it is also characterised by a high degree of volatility. Professor Alex Kemp has estimated that tax revenues from the Scottish Continental Shelf would, in the decade following independence, be "between £5 billion and £10 billion per annum".⁶⁸ This is a very large window. Thus an independent Scotland⁶⁹ would find itself in receipt of revenues which would, at times, be very high but which would be unpredictable and widely-fluctuating. If Scotland were to gain independence at a time of low oil price and/or a critical piece of infrastructure were to be damaged shortly after independence, it would be necessary either to borrow in order to maintain spending or to cut public spending in order to make up the budgetary shortfall. Conversely, if Scotland gained independence at a time of high oil price and/or independence was followed by a period of few unplanned interruptions of production, a significant surplus could accumulate.

⁶⁶ EIA, Annual Energy Outlook 2013, available at http://www.eia.gov/forecasts/aeo/er/early_prices.cfm.

⁶⁷ BBC, Second Leak at Cormorant Alpha, 2 March 2013, <http://www.bbc.co.uk/news/uk-scotland-scotland-politics-21643231>.

⁶⁸ Alex Kemp, 'North Sea Oil and Gas', in A Goudie (ed.), *Scotland's Future: The Economics of Constitutional Change*. Dundee University Press, 2013, pp243-265, at para 11.7. Prof Kemp has confirmed that this figure is net of any state contribution to decommissioning costs.

⁶⁹ Or, indeed, a Scotland within the UK to which Scottish Continental Shelf tax revenues had been hypothecated.

Given the problem of unpredictability, it would be a serious mistake if such a surplus were to be spent on unsustainable public spending; however such a surplus could be used to reduce the national debt and/or to found an oil fund.⁷⁰ Although it is likely that, over the remaining lifespan of oil production on the Scottish Continental Shelf, an independent Scotland would experience boom times, bad times and something in between, and while investor confidence is presently high, given the long standing unpredictability of oil price it is not possible to say with any certainty which of these starkly contrasting sets of circumstances a newly independent Scotland would be born into.

Oil and Gas Taxation: Stability and the limited prospects for a new paradigm

The UKCS's tax system has been marked by much instability. "Windfall taxes" (in the form of, first, the introduction and then the increasing of the rate of, supplementary charge) have been levied by Labour and Coalition-led UK governments in recent times. Such "tax grabs" – although highly successful in realising increased levels of tax in the short term – have caused significant disquiet within the industry, affecting investor confidence and apparently resulting in decreased levels of exploration. It has been argued that, as an independent Scotland would be relatively more dependent upon the oil industry than the UK currently is, it might show the industry greater consideration than has the UK treasury.⁷¹ There is certainly logic in this, but in practice that dependence might prove to be very difficult to take an abstemious line, particularly if other countries are not showing the same degree of restraint or if there is a strong political imperative to "make hay while the sun shines" and in so doing build up an oil fund or reduce the national debt.

What, then, are the key features of the tax system? At present, it contains three main elements: Corporation Tax, Supplementary Charge and (for fields developed prior to 1993) Petroleum Revenue Tax. Corporation Tax is levied at a rate of 30% with capital allowance being made for major investment costs on a 100% first year basis. Supplementary Charge is levied at the rate of 32%. There are a host of allowances deductible against Supplementary Charge in order to encourage a range of different types of development: typically these are developments that might be characterised as economically marginal (e.g. small fields or high-cost brownfield) and/or technically challenging (e.g. high temperature/high pressure fields, heavy oil fields).⁷² Both Corporation Tax and Supplementary Charge are subject to a ring-fence which means that losses external to upstream oil and gas operations cannot be set off against profits from the upstream UKCS.

⁷⁰ Contrary to what is sometimes said, an oil fund does not necessarily work on the basis that "all" oil revenues are paid into a fund and only the interest taken out (see, e.g., The Scotland Office, 'Scotland and Oil', 2009, p.9.) The Scottish Government's 'An Oil Fund for Scotland' (2009, available at <http://www.scotland.gov.uk/Resource/Doc/280368/0084457.pdf>) provides a more nuanced discussion of the arguments for and against the institution of such a fund and provides (in Chapter 4) a useful comparative discussion of a number of existing funds.

⁷¹ Alex Kemp, 'North Sea Oil and Gas', in A Goudie (ed.), *Scotland's Future: The Economics of Constitutional Change*. Dundee University Press, 2013, pp243-265, at para 11.8.1.

⁷² E.g. small fields, high pressure/high temperature fields, heavy oil fields, remote gas fields, large deep-water fields, high cost brownfield projects.

However, the ring-fence it not (for these taxes) applied at a field-by-field level, and so losses from one allowances pertaining to relevant expenditures in one field can be set off against income from another field for tax purposes. Kemp has noted that “after independence, there would be a need to separate the activities pertaining to the Scottish and rUK sectors for the purposes of calculating taxable income and tax payments for Corporation Tax and Supplementary Charge.”⁷³ For these taxes, decommissioning costs may be clawed back to 2002. Petroleum Revenue Tax is chargeable only in relation to fields developed before March 1993. It is levied at the rate of 50% and, this being conceived of as a field tax, the ring-fence operates on a field by field basis. It has its own complex set of allowances quite different from those which pertain to Supplementary Charge, and decommissioning costs may be clawed back against Petroleum Revenue Tax without limit of time.

The tax system has therefore been used as the means by which the state makes its contribution to the cost of decommissioning. However, as we have already seen, the tax system has not been stable. Previously, the UK government was unwilling to formally confirm that the tax reliefs on offer for decommissioning would still be in place at the time when decommissioning work commenced. This, taken together with the fact that any oil company which has previously held a licence for can potentially be held liable to pay towards its decommissioning,⁷⁴ has created significant difficulties for the industry in its attempts to implement the government-approved policy of putting the right assets in the right hands. Put shortly, a major oil company selling its interest in an oil field on to a smaller company might, perhaps years after divesting itself of its asset, find itself presented with a bill for the decommissioning of that field. In the circumstances, the seller will expect to receive some manner of security from the purchaser to protect itself from that risk; and because the seller does not know if the tax reliefs will be honoured, prudence dictates that it should work on the assumption that they will not. As a result, the seller seeks security for the total anticipated decommissioning cost, not the significantly less figure of that total under deduction of the allowable reliefs. This has created a barrier such deals, slowing their progress and in some cases preventing them from completing. Even where such deals have been completed, it has had the effect of tying up in guarantees or other instruments funds that could otherwise have gone towards working capital for exploration and production activities.

The Government and industry have been working to address this problem since 2011. The 2013 Budget included a pledge on the UK Government’s part to enter into legally binding contracts to guarantee the availability of relief. Although these contracts would not technically bind an independent Scotland, there can be little doubt that once these contracts are in place, the industry would expect them to be honoured in the event of independence, and, if there appeared to be any dubiety on this point, would prevail upon the rUK to secure agreement in this regard during negotiations – albeit the Scottish Government has, from an early stage, signalled its acceptance of the scheme.⁷⁵ Thus – while an independent Scotland might be able to retain some scope for adjusting the precise modalities of the system – it would be very difficult for changes to be made which did not provide at least an equivalent benefit to that available under the contracts.

⁷³ Alex Kemp, 'North Sea Oil and Gas', in A Goudie (ed.), *Scotland's Future: The Economics of Constitutional Change*. Dundee University Press, 2013, pp243-265 at para 11.4

⁷⁴ Petroleum Act 1998, s.29 read together with s.34. For a commentary, see J Paterson, 'Decommissioning', in Gordon, Paterson and Usenmez, para 10.39 to 10.43.

⁷⁵ The Scottish Government, *UK Continental Shelf Tax Regime – Options for Reform*, 2011, available at <http://www.scotland.gov.uk/Resource/Doc/919/0121778.pdf>, pp.6-7.

The use of the taxation system to provide some measure of state contribution of decommissioning – and the forthcoming plans for the stabilisation of those provisions - may therefore have made it harder for an independent Scotland to take steps to simplify the taxation system. This is perhaps to be regretted. The current UK system is essentially rational but extremely complex. The rationality is seen in the existence of measures (primarily in the form of field allowances) which incentivise marginal and difficult developments. This kind of incentivisation is consistent with the Government’s stated aim of maximising production. However, the mechanism for implementing those objectives is very convoluted. It gives rise to definitional problems (i.e. to questions such as “my field is a small field; but is it a “small field” for the purpose of the allowance?”). It requires such a detailed level of knowledge of taxation that many small players lack the in-house capacity to determine whether a given project is going to be commercially viable and are highly dependent upon external tax advice. It has been argued that the same policy aims would be better served by the abolition of the complex set of allowances and reliefs and introduction of a progressive system of taxation, whereby, in the case of a marginal field, an Investment Return Allowance could be claimed against Supplementary Charge.⁷⁶ It may, however, now prove to be very difficult to achieve this. Thus, even after independence, this and other legacy issues could hinder attempts by Scotland to implement novel policy initiatives.

Oil and Gas taxation: data transfer, complexity and potential for disagreement on the apportionment of decommissioning liability

Following independence, a significant amount of decommissioning work inevitably be undertaken where the claw-back period extended back to a date prior to independence. As noted above, it will in all likelihood be impossible for an independent Scotland not to offer a set of decommissioning tax breaks that are at least equivalent to those which have hitherto been available. This raises the prospect that, following independence, significant quantities of production and fiscal data would require to be transferred from rUK to Scotland. It has been said that “[t]he allocation of the relief between the new and former tax jurisdiction offers ample scope for complexity, confusion and disagreement.”⁷⁷ This is undoubtedly true. There would seem to be no legal basis for Scotland insisting that rUK contribute (in line with the extent to which it historically benefitted) towards the cost of tax relief upon decommissioning. This would simply be a matter to be agreed between the parties. If (as seems likely), Scotland were to be seen to be exiting the Union with the lion’s share of the remaining oil, it is hard to imagine that rUK would readily agree to bear a proportionate share of tax relief pertaining to areas from which rUK would no longer obtain any direct benefit.

Tax treaties

At present, the UK has in place a significant volume of bilateral double tax treaties, some of which make specific reference to oil and gas operations and taxation.⁷⁸

⁷⁶ The Scottish Government, *UK Continental Shelf Tax Regime – Options for Reform*, 2011, available at <http://www.scotland.gov.uk/Resource/Doc/919/0121778.pdf>, p.5. Other possibilities were also outlined but Investment Return Allowance was the favoured option.

⁷⁷ Alex Kemp, 'North Sea Oil and Gas', in A Goudie (ed.), *Scotland's Future: The Economics of Constitutional Change*. Dundee University Press, 2013, pp243-265 at para 11.4.

⁷⁸ See, e.g., the treaty with the USA: UK/USA Double Taxation Convention signed 24 July 2001 and Amending Protocol signed 19 July 2002, available at <http://www.hmrc.gov.uk/taxtreaties/in-force/usa-consolidated.pdf>.

In addition to any other such treaties as may be necessary, an independent Scotland would require to enter into such treaties with at least rUK and any nation in which the parent company of any significant players in the Scottish Continental Shelf is domiciled.

REGULATORY REGIME AND REGULATORY CAPACITY

Health, Safety and Environmental Regulation

One of the key challenges for the UK government throughout the history of the offshore oil and gas industry has been the regulation of health and safety at work. Possibly no other aspect of the legal and regulatory dimension of the industry has seen such a profound evolution over the past five decades since operations on the UKCS began. Beginning in the mid-1960s with a rather rushed and inadequate reference to the issue in the early production licences followed by brief written instructions from the Minister to follow the industry's own nascent code of practice for offshore operations,⁷⁹ it was not long before the complexity of the problems facing industry and regulator became apparent with the loss of the Sea Gem drilling rig and 13 lives in 1965. The Inquiry into this accident called in 1967 for wholesale reform in the shape of detailed prescriptive regulations.⁸⁰ That this was no simple matter to achieve is evident from the fact that it took until 1980 to complete that new regulatory regime,⁸¹ by which time the large first-generation platforms were already operational, producing oil from fields such as Brent, Ninian, Forties and Piper.⁸² That the detailed prescriptive approach to health and safety regulation had been discredited by the Robens Report of 1972⁸³ and essentially replaced for all other industries by the Health and Safety at Work Act 1974 only served to compound the difficulties facing the offshore industry and its regulators in this regard. The Burgoyne Committee, reporting in 1980, acknowledged the problems but avoided the wholesale reform that appeared to be required.⁸⁴

The Cullen Inquiry into the loss of the Piper Alpha and 167 lives in 1988 was the point at which this unsatisfactory state of affairs was brought to an end and the still current offshore safety regime was established.⁸⁵

⁷⁹ Petroleum (Production) (Continental Shelf and Territorial Sea) Regulations 1964 (SI 1964/708), Schedule 2, Clause 18. For details of this letter of instruction and the Institute of Petroleum Model Code of Safe Practice in the Petroleum Industry, see Ministry of Power, *Report of the Inquiry into the Causes of the Accident to the Drilling Rig Sea Gem* (Cmnd. 3409, 1967) (hereafter referred to as "Sea Gem Inquiry"), pp17-22.

⁸⁰ Sea Gem Inquiry, para 10.2(i).

⁸¹ The Mineral Workings (Offshore Installations) Act 1971 came into force in 1972, but the prescriptive regulatory regime called for by the Sea Gem Inquiry was not complete until the end of the decade with the passage into law of the Offshore Installations (Well Control) Regulations 1980 (SI 1980/1759).

⁸² First oil from these fields flowed as follows: Forties, September 1975; Brent, November 1976; Piper, December 1976; and Ninian, December 1978.

⁸³ Lord Robens, *Safety and Health at Work: Report of the Robens Committee* (Cmnd 5034, 1972).

⁸⁴ J H Burgoyne, *Offshore Safety: Report of the Committee* (Cmnd 7866, 1980).

⁸⁵ Lord Cullen, *The Public Inquiry into the Piper Alpha Disaster*, (Cm 1310, 1990).

The new approach is characterised by goal-setting regulations; by the transfer of responsibility from the state to the operator for the identification of hazards, quantification of risks and development of means to reduce risks to the lowest reasonably practicable level; and by the need for the operator to argue that the design, construction and operation of its installation is safe in the context of a Safety Case. This last document is regarded as “living” on the basis that it must be updated as and when required by the changing condition of the installation, the addition of new equipment, etc. Finally, the workforce must be involved in the development and the ongoing review of the Safety Case. With these innovative features, the UK’s approach to offshore health and safety regulation is now regarded as a world leader.⁸⁶

Despite the undoubtedly more favourable position in relation to offshore health and safety regulation today, the difficulties facing industry and regulator in this regard are by no means all behind them. Indeed, it is possible to argue that the most significant challenges lie ahead. Some 15% of the platforms on the UKCS are more than 40 years old, while a third are more than 30 years old. The problems associated with maintaining infrastructure in a safe operational condition were already highlighted by the Health and Safety Executive’s Key Programme 3 Report in 2007, which noted that there was “a poor understanding across the industry of [the] potential impact of degraded, non-safety-critical plant and utility systems on safety-critical elements in the event of a major accident” and that “the role of asset integrity and [the] concept of barriers in major hazard risk control” were “not well understood”.⁸⁷ Thus, for all that the Safety Case has the potential to be among the most advanced and effective regulatory approaches to offshore health and safety, it is clear that much depends on how it is being implemented by the operators. This in turn requires a proactive regulator. Even if the regulator is no longer responsible for the development of detailed regulation, the role of assessing and challenging Safety Cases for several hundred installations cannot be underestimated. But in addition the regulator needs, as the HSE has done in the Key Programme initiatives,⁸⁸ to maintain an overview, to strive to see the bigger picture and to identify emerging trends which may pose a threat to safe operations.

In all of these regards, a key challenge facing the industry today is the fact of ageing infrastructure. Thus, the difficulties relating to asset integrity identified in Key Programme 3 are only set to increase as the average age of installations and associated infrastructure on the UKCS rises. One approach to the problem of ageing infrastructure is, of course, simply to decommission it when it reaches the limit of its initial design life.

Matters are, however, rarely as simple as that. Experience has demonstrated that the life of infrastructure can be extended with appropriate expenditure. Such expenditure must, of course, be justified, and this will only occur where there is an appropriate conjunction of remaining reserves in the reservoir, a viable plan to extract it (perhaps using enhanced recovery techniques) and a favourable price and taxation environment.

⁸⁶ Offshore Safety Act 1992; Offshore Installations (Safety Case) Regulations 2005 (SI 2005/3117).

⁸⁷ Health and Safety Executive, *Key Programme 3: Asset Integrity Programme: A Report of the Offshore Division of the HSE’s Hazardous Installations Directorate*, November 2007, p6.

⁸⁸ In addition to KP3 referred to above, KP1, which ran in 2000-2001, investigated offshore hydrocarbon releases (principally accidental gas releases) while KP2, which was initiated in 2003, targeted deck and drilling operations. The reports relative to all Key Programmes are available from <http://www.hse.gov.uk/offshore/programmereports.htm>.

That some 50% of installations on the UKCS are beyond their initial design life could be an indication of the extent to which conditions have been sufficiently favourable to allow that additional expenditure. In this regard, the HSE's ongoing Key Programme 4 dealing specifically with ageing infrastructure has noted "good evidence that industry senior management recognise the importance" of these issues. It has also concluded in an interim report, however, that "the industry has still much to do to ensure that installation long-term plans anticipate and manage the effects of equipment and infrastructure degradation". Nor are the potential problems associated with ageing infrastructure merely hypothetical, with the HSE pointing to evidence from onshore industries that "60% of major accident incidents are related to technical integrity and, of these, 50% have ageing as a contributory factor".⁸⁹ Key Programme 4 is set to continue to December 2013 by when most duty holders on the UKCS will have been inspected by the HSE and should have developed and be implementing long-term plans to respond to the challenges of ageing in relation to their individual installations. It is then envisaged that the implementation of these plans will be reviewed, "particularly the commitment of senior management to provide resources and expertise to maintain the integrity of their installations".⁹⁰ In short, very significant regulatory challenges lie ahead, with no indication that the burden is going to get lighter and every indication that it is going to increase, even if the focus is only on the issue of ageing infrastructure. Given the increased significance of revenues from hydrocarbon production to an independent Scotland, the realisation that infrastructure has gone beyond the point at which its ongoing operation is safe and at which further maintenance is feasible will be doubly difficult to accept, the more so where that results in stranded reserves.

The challenges facing regulators are by no means confined, however, to these issues. Among the others currently on the horizon is the possible impact of proposed new EU legislation. Developed in response to concerns expressed by the European Parliament about the possibility of a Macondo-style disaster in European waters,⁹¹ the proposed legislation is something of a moving target and thus difficult to comment on with any certainty. Having started out as a proposal for a Regulation that would have been directly effective,⁹² it was met with considerable opposition from all producer Member States as well from Norway, which as a member of the EEA would also have been affected.⁹³

⁸⁹ HSE, Key Programme 4 (KP4), Ageing and life extension: An interim report by the Offshore Division of HSE's Hazardous Installations Directorate, November 2012, pp4-5.

⁹⁰ Ibid, p14.

⁹¹ European Parliament resolution of 7 October 2010 on EU action on oil exploration and extraction in Europe.

⁹² Proposal for a regulation of the European Parliament and of the Council on safety of offshore oil and gas prospecting, exploration and production activities (COM(2011)0688 – C7-0392/2011 – 2011/0309(COD)).

⁹³ For example, Norway: Comments to the European Commission proposal for a Regulation of the European Parliament and of the Council on safety for offshore oil and gas prospecting, exploration and production activities, December 2011.

Despite the Commission explicitly suggesting that it had in large measure been influenced by best practice evident in the health and safety regulation implemented in the major European producer states, principally the UK and Norway, critics were concerned that its effort to impose all examples of what it regarded as best practice on every state was misplaced. Specifically, it may be suggested that the achievement of effective offshore health and safety is not simply a question of taking every feature of every system and putting them all together in one new regime, but rather of recognising that different features from different systems may be functionally equivalent and specifically preferred on the basis of their fit with the broader national political, legal, social and cultural context. By contrast, the artificial addition of a feature from one system to another may result in a conflict with existing arrangements and actually be counterproductive. At the time of writing, it is apparent that the Commission and the Parliament have listened to this criticism and are now proposing that the legislation that will be forthcoming will be in the form of a Directive, which will provide Member States with a greater degree of flexibility as to how they achieve the overall objectives.⁹⁴

While this development has been greeted with some relief in the UK and Norway,⁹⁵ it needs to be appreciated that the challenges facing regulators and the industry are by no means over. Among the issues that require to be resolved is the extent to which the UK's current arrangements for health and safety and environmental regulation would be in compliance with the Directive as it is currently drafted. It is clear that a key concern is to avoid conflicts of interest between regulatory and economic development functions. In this regard, the fact that DECC is responsible both for licensing and for significant environmental regulation may be a problem and it may be necessary to separate out the environmental regulatory functions and pass them to existing bodies, such as the Environment Agency and the Scottish Environmental Protection Agency. As the draft Directive stands, it appears possible to have the "competent authority" responsible for regulation be composed of more than one body. Thus it would appear possible for the HSE and the EA/SEPA to operate as the competent authority with the proviso that one is designated as the lead with coordination responsibilities. This arrangement is already operational onshore in relation to the Control of Major Accident Hazard Regulations 1999,⁹⁶ which are themselves the product of European legislation.⁹⁷

A similar conjunction of health, safety and environment was also evident in the proposed EU Regulation in the context of the requirement for each operator to produce a Major Hazard Report for each installation. This was undoubtedly influenced by the UK's Safety Case, but differed insofar as it would have required the simultaneous consideration of health, safety and environmental issues in a single document. Given the existing complexity of the Safety Case, there must be concerns that the addition of further requirements would actually be counterproductive insofar as it could divert the focus away from the core duty of reducing risk to the workforce to the lowest reasonably practicable level.

⁹⁴ Council of the European Union, Draft Directive of the European Parliament and of the Council on Safety of Offshore Oil and Gas Operations and Amending Directive 2004/35/EC Brussels, 4 March 2013.

⁹⁵ See, for example, Oil & Gas UK, Press Release, "Oil & Gas UK Responds to European Commission's Announcement on Offshore Safety Directive", 21 February 2013, <http://www.oilandgasuk.co.uk/news/news.cfm/newsid/823>.

⁹⁶ SI 1999/743, as amended.

⁹⁷ Council Directive 96/82/EC on the control of major accident hazards involving dangerous substances.

The draft Directive appears to require a similar approach to the Major Hazard Report, and while it is the case that the legislative form now envisaged offers Member States greater flexibility as to how they achieve the objectives, it is not clear that it would be sufficient for the UK to attempt to suggest that the MHR objectives are met by a combination of, say, a project's Environmental Impact Assessment, its Safety Case and its Oil Pollution Emergency Plan. In other words, amendment to the Safety Case Regulations may still be required.

In conclusion, an independent Scotland would find itself assuming responsibility for the regulation of health, safety and the environment in relation to offshore hydrocarbons at a time when a series of practical and legal factors are combining to make the years ahead perhaps more challenging from a regulatory perspective than any that has gone before.

Regulatory Capacity

The relatively brief review above of some of the most important (but by no means all) difficulties facing regulators in relation to occupational health and safety and environmental protection offshore demonstrates that a future independent Scotland would require to take on a very considerable regulatory burden indeed. These matters are currently in very large measure dealt with by departments and agencies of the UK government (albeit that some environmental regulation is the responsibility of SEPA) and it will be a question of considering how relevant expertise and other resources might be transferred or shared. A particular challenge is posed by the fact that while the vast majority of activity on the continental shelf in the event of independence will take place in the Scottish sector, the rest of the UK will retain an offshore industry and may indeed be the location of a substantial new onshore industry associated with the development of shale gas. That last factor in particular may suggest that it is by no means certain that there would be readily available expertise and other resources to be transferred to new specifically Scottish regulatory authorities in the event of independence. Indeed, DECC is currently finding it difficult to fill even a relatively modest number of vacancies within its own inspectorate, with only 3 out of the 8 inspectors positions advertised in the aftermath of the Deepwater Horizon incident having been successfully filled.⁹⁸

These remarks give some indication of the challenge a future independent Scotland would face in relation to the provision of sufficient regulatory resources, but they by no means indicate the extent of that challenge. There is a considerable range of other regulatory and administrative functions relating to the offshore industry that are currently carried out by the UK government. For example, there is a substantial amount of work done in relation to the issue and ongoing monitoring of production licences, currently in the hands of DECC. DECC will become increasingly involved in the approval and monitoring of decommissioning plans as the industry moves ever closer to that phase of its lifecycle beginning in earnest the mature area. The fallow initiative and the stewardship scheme require DECC to process large volumes of complex data and make well-informed and defensible judgment calls on which fields or joint ventures are operating appropriately and which are not. Similarly, there is the work done in connection with the taxation of the industry, which is a matter for HMRC.

⁹⁸ Press and Journal, 12 March 2013. The sensationalist tone of the report, and the reporter's incorrect belief that responsibility for health and safety matters lies in the hands of DECC when that department's inspectorate is concerned with environmental enforcement only, is to be regretted. Nevertheless, the fact remains: the positions have not been filled.

Again, it may be the case that some of the expertise and resources could be transferred from these UK departments and agencies to the new Scottish Government, but this again assumes that there is no expectation that some or all of that resource may be required in connection with the development of a sizeable onshore shale gas industry in the remainder of the UK. The challenges will only grow if an independent Scotland wished to make significant changes to oil and gas policy, although as noted above, this is may not be practicable and is not especially likely.

One solution to this problem may be to envisage that regulation of the offshore industry across all facets would be a matter for joint authorities of the Scottish and UK Governments. This would also have the advantage that companies operating in both the Scottish and UK sectors of the continental shelf would not have to duplicate effort in dealing with two sets of regulators in relation to operations which they may themselves see as interconnected. Whether such a solution would be politically acceptable to either government is, of course, a separate matter. But it is important to stress that political acceptability may need to take cognisance of economic reality if there is any perception that regulatory arrangements are not only burdensome to the governments but also to industry. To a very considerable extent, the ease with which the industry can interact with the authorities is a key feature of its perception of the investment climate. Undue complications run the risk of deferred or even abandoned investment.

Issues of regulatory capacity and inefficiency would also arise in the event of any constitutional change short of independence which devolved regulatory or administrative functions to the Scottish Government.⁹⁹ These issues would not arise if regulatory and administrative functions remained within the purview of Westminster. However, given the inter-connection between matters of fiscal and administrative policy, if fiscal matters were to be devolved to Scotland while regulatory and administrative functions were not, the different but potentially serious problem of a conflict of policy objectives could arise, with the Scottish government potentially using one lever (tax) to push policy in one direction and Westminster using different levers to pull it in another.

LEGACY

The significant contribution that the oil and gas industry makes to the UK's economy and could make to a future Scottish economy has been outlined above. It is possible to argue, however, that to date the best use has not been made of that contribution. Insofar as oil and gas are depleting resources, there is good reason to regard revenue generated from their production as only inappropriately applied to current expenditure. Instead, such revenue should be invested and any contribution to current expenditure coming only on the returns from that investment, with the capital maintained for the future. That approach has not been adopted in the UK so far and it is doubtful whether the additional benefits hoped for by meeting current needs from oil and gas revenues (reduced personal and corporate taxation, additional resources freed up to invest in other industries, etc) have materialised to any significant extent.

⁹⁹ See e.g. Kemp.

Whether a future independent Scotland should invest in such an oil fund is beyond the scope of this paper, but it is worth noting that the uncertainties about the amount of future revenues resulting from possible ongoing volatility in oil prices mean that it may prove difficult to ensure payments to such a fund where the government finds itself unable to meet current liabilities out of other tax receipts.¹⁰⁰

Be that as it may, there is another way in which the industry could produce a lasting legacy even after production is significantly diminished or ceases. The development of the industry especially but not exclusively in the north-east of Scotland over the past five decades and the fact that the North Sea has continuously presented technological challenges has resulted in a practically unmatched concentration of expertise across all facets of the industry. All else equal, the progressive depletion of the reservoirs on the continental shelf could see the gradual dispersal of that expertise to the point where it ceases to exist. There is, however, an alternative scenario. Recent years have seen the UK-based industry extending its reach to other parts of the world, in essence using the UK as a hub for operations overseas. This is a development which could be further extended and, in an ideal world, that extension would grow to offset the diminution in work on the UKCS. While that ideal may be unattainable, there is nevertheless the opportunity to establish what Sir Ian Wood has referred to as an “eastern hemisphere oil and gas capital” from which the supply chain can operate internationally.¹⁰¹

Any such development would be dependent on the provision once again of the appropriate investment environment, including in particular the infrastructure required for efficient international operations. Whatever the constitutional position following the referendum, government has the chance to secure a legacy from the offshore oil industry that could endure for as long as there are hydrocarbon operations anywhere in the world. UK experience and expertise across all facets of the industry is highly-prized and it would be remiss were that human capital not to be leveraged to the maximum extent and instead allowed to dissipate.¹⁰²

In this regard it is important to recognise the complementary roles that will be continue to be played for decades yet by the hydrocarbon and renewable energy industries. The UK Government and perhaps especially the Scottish Government have rightly committed themselves to the development and installation of renewable energy sources.¹⁰³ There are synergies between these industries (for example, in relation to the installation of infrastructure offshore) which mean that the progress of one can benefit from the progress of the other.

¹⁰⁰ Alex Kemp, 'North Sea Oil and Gas', in A Goudie (ed.), *Scotland's Future: The Economics of Constitutional Change*. Dundee University Press, 2013, pp243-265.

¹⁰¹ “Sir Ian Wood warns of ‘oil nightmare’”, <http://www.bbc.co.uk/news/uk-scotland-north-east-orkney-shetland-20257660>

¹⁰² For a useful discussion of the issues in a local context, but with national significance, see PriceWaterhouseCoopers, *Northern Lights: A Strategic Vision of Aberdeen as a World-class Energy Capital*, November 2011, <http://pwc.blogs.com/scotland/2011/11/northern-lights-a-strategic-vision-of-aberdeen-as-a-world-class-energy-capital.html>

¹⁰³ For the current position, see: Scottish Government, 2020 Renewable Routemap for Scotland – Update, 30 October 2012, <http://www.scotland.gov.uk/Resource/0040/00406958.pdf>; DECC, UK Renewable Energy Roadmap Update 2012, 27 December 2012, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/80246/11-02-13_UK_Renewable_Energy_Roadmap_Update_FINAL_DRAFT.pdf

While it is stated policy to increase the role played by renewables in the energy mix and to decarbonise the economy progressively, there will be a role for hydrocarbons for the foreseeable future in the UK. And importantly, it is very likely that there will be a role for hydrocarbons internationally for a considerably longer period. Thus, even as renewables increasingly dominate the domestic energy scene in the coming decades, there will be significant opportunities for domestic expertise and capital in hydrocarbons elsewhere in the world, the deployment of which can produce ongoing substantial benefits to the UK and/or a future independent Scotland.

One of the ways in which the ongoing development of the industry as well as the achievement of the legacy can be achieved is through the continuing focus on research, education and training so that companies continue to have both the technology and the people they require. It must be acknowledged that during previous periods of low oil prices the industry has not always been good at foreseeing the longer-term effects of short-term reductions in investment, not least as regards recruitment. This has produced a situation at present where although there may be sufficient new graduates to meet the current recruitment needs of the industry, there is a perceived problem higher up in organisations where lower recruitment in the past is now being felt in a shortage of more experienced personnel. There is an opportunity for government, industry and education providers to work collaboratively to address such challenges, but also to develop clear plans to meet future needs in the context of a stable and conducive investment environment. A considerable amount has already been achieved through initiatives such as the Energy Skills Partnership,¹⁰⁴ and the Energy Technology Partnership,¹⁰⁵ and there are indications at the time of writing that further developments are in the pipeline.

The important point in relation to all of these issues is that the realisation of long-term benefits will depend in no small measure on the willingness of whichever government has the relevant powers to facilitate the continued presence of the hydrocarbon industry in its North Sea heartland and its ability to project its power globally.

CONCLUSION

The independence debate in some sense introduces an unwelcome note of uncertainty for the oil and gas industry on the UK Continental Shelf at a time when its own perception is of relatively stable relations with government and consequently a favourable investment environment. This is not to say that a vote in favour of independence would necessarily upset this situation. Some issues would undoubtedly take time to resolve and clarify, whether the location of the international maritime boundary or the shape of government policy towards what would be the single most important industry in the country. But the Scottish Government, no less than the UK Government in recent times, has indicated a clear appreciation of the industry's concerns and of the fact that it plays on a global field with attractive opportunities elsewhere. Just how easy it would be, however, to maintain policies aimed at long-term investment rather than at short-term gains in the context of economically-straightened times is an unanswered question. Nor should the regulatory burden presented by the increasingly complex industry on the continental shelf be underestimated.

¹⁰⁴ <http://www.esp-scotland.ac.uk/>

¹⁰⁵ <http://www.etp-scotland.ac.uk/>

The challenges facing the government of an independent Scotland in relation to the oil and gas industry are therefore considerable. They can also be read as a significant opportunity. What is important is that the country enters the referendum with its eyes open and with no illusions about what a continuing successful oil and industry would entail.

THE DAVID HUME INSTITUTE

HONORARY PRESIDENT

The Rt Hon Lord Steel of Aikwood KT KBE (2010-)

HONORARY VICE-PRESIDENTS

Professor James Buchanan, Nobel Laureate in Economics

Ms Frances Cairncross CBE

Baroness Margaret Ford

Professor Francesco Forte

Mr. Allan Massie

BOARD OF TRUSTEES

Professor Alan Alexander, OBE, FRSE

Mr Stephen Boyle

Ms Kyla Brand

Professor Alice Brown, CBE, FRSE, FRSA, AcSS, Cipfa (Hon)

Mr Jo Elliot

Hon Lord Hodge

Professor Charlie Jeffery

Dr Ken Lyall

Professor Hector MacQueen (Chairman), FRSE

Professor Donald MacRae, OBE, FRSE

Professor Anton Muscatelli, FRSE, AcSS

Mr Ian Ritchie, CBE, FEng, FRSE

Professor Dame Joan Stringer, CBE, FRSE

Mr Andrew Welsh

HONORARY TRUSTEES

Mrs Catherine Blight

Sir Ian Byatt

Sir Gerald Elliot, FRSE

Miss Eileen Mackay, CB, FRSE

Professor Sir Alan Peacock, DSC, FBA, FRSE

Sir John Shaw, CBE, FRSE

DIRECTOR

Professor Jeremy A Peat, OBE, FRSE,

REGISTERED OFFICE (Registered in Scotland No. 91239)

26 Forth Street, Edinburgh,

EH1 3LH

Tel (0131) 550 3746

Scottish Charity Number SC009579

Email: enquiries@davidhumeinstitute.com

Website www.davidhumeinstitute.com