

THE BIG SPILL

25 years on from the
what have we

FAULTS

and falls

RICHES

set for a
commissioning boom

tce

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Separation anxiety

What Scottish independence would mean for North Sea oil

Going it alone

Sanjoy Sen guides us through the key talking points surrounding Scotland's potential exit from the UK



ON 18 September, the Scottish electorate will be asked to vote on whether Scotland should be an independent country – or not.

A 'yes' in the referendum would see Scotland gain independence for the first time in 300 years. In the midst of a polarised debate on the need to split or stay united, there are questions to be answered on what effects independence would have on the North Sea oil & gas industry. If Scotland's first minister Alex Salmond is correct, Scotland could finalise its separation from the UK as early as 2016, leaving those in and around the sector with what would feel like two short years to address a number of critical issues.

it's profitable up north

Offshore oil and gas production from the UK Continental Shelf (UKCS) meets half of UK demand, though this is in decline. Data from the trade association Oil & Gas UK (O&G UK) shows the UKCS contributed £11bn (US\$18.4bn) in taxes in 2012, and supports 450,000 jobs, with half of those in Scotland.

Since its discovery in the 1960s, North Sea energy has fuelled the Scottish nationalist agenda and, due to its substantial remaining value, is central to the referendum debate. The Scottish government estimates a further 24bn boe, worth £1.5trn, is recoverable.

Although production has halved from its peak of 4.5m boe/d in 1999, high post-millennial oil prices have seen the UKCS enjoy an Indian summer. Furthermore, as the sector matures we've seen it evolve and continue to thrive.

Last year, investment in the North Sea was a record £13bn, says O&G UK. Multi-nationals have divested mature assets, such as BP selling its Forties field to Apache for US\$1.3bn in 2003 and Shell's divestment of its Northern Assets to Abu Dhabi's TAQA in 2008. The oil majors are instead turning their attentions to major finds west of Shetland, as seen with Total's development of the Laggan and Tormore fields. Meanwhile, we've seen the entry of national oil companies (NOCs)

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including Norway's Statoil, and utilities including GDF-Suez, while other firms toil to decommission the redundant infrastructure from spent fields.

If an independent Scotland acquired the majority of the North Sea reserves, oil would be the country's largest industrial sector, forming almost 20% of the economy. While many issues below apply irrespective of the referendum, they are clearly much more material in an independent Scottish context.

For perspective though, note that Scotland would hold just 0.1% of global reserves. Scotland is not a prospective Gulf-style petro-state and should not expect an OPEC invitation (or to make an offer to host the World Cup any time soon).

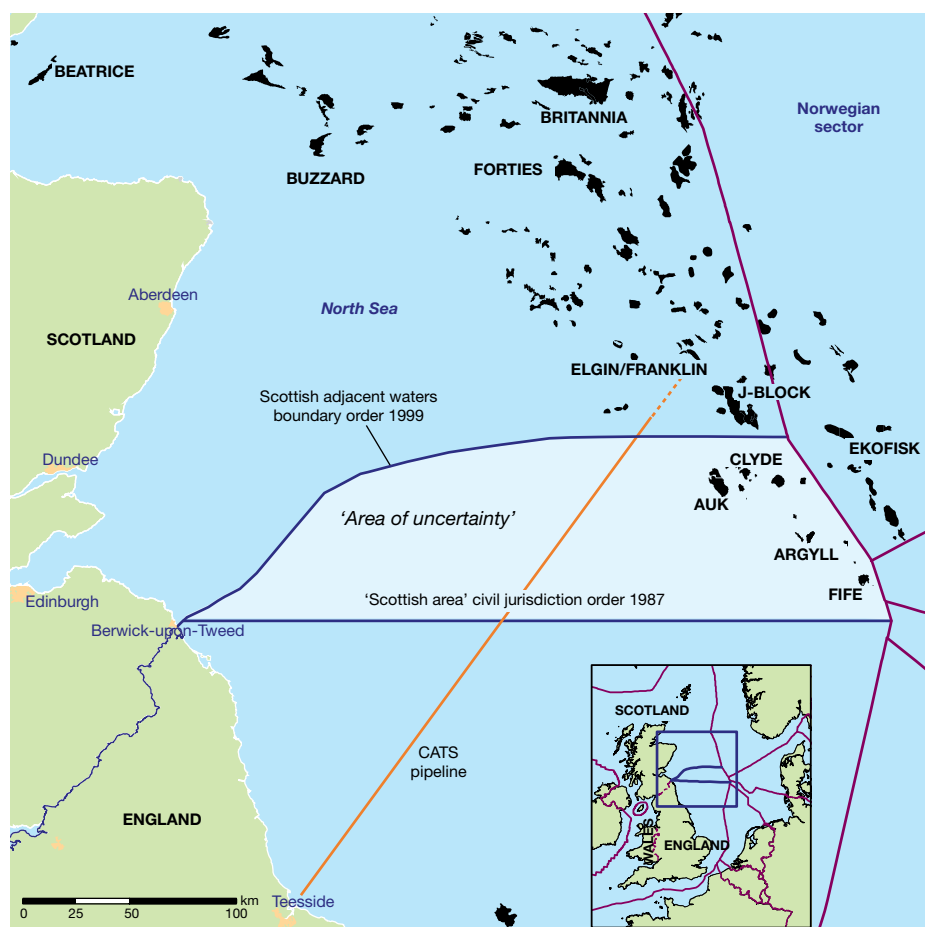
draw the line

Scottish and English law have always remained separate and two maritime boundaries already exist. The Scottish Adjacent Waters Boundary Order 1999 draws a diagonal median line while the Scottish Area (Civil and Criminal) Jurisdiction Orders 1987 gives a horizontal line extending from the eastern land border at Berwick-upon-Tweed. With these two options we have an 'area of uncertainty' containing 2% of

UKCS reserves (see below). Looking north of the diagonal, if Scottish nationalists win independence, they'll take with them at least 85% of UK reserves. For the oil industry it will be more important to achieve an early agreement on boundary issues than agree where exactly to draw the line.

Once it's agreed, any fields that straddle the border would require unitisation agreements similar to the existing arrangements between the UK and Norway. Unitisation agreements allow a cross-border field to be developed most quickly and efficiently as a single unit with all parties collaborating, not competing. Treaties would also have to be agreed for Scottish fields that bring production ashore to the UK, such as via the existing CATS pipeline which transports what would become Scottish gas to Teesside in England.

Meanwhile, the division of assets way up north would also require resolution. Much of UKCS reserves lie closer to the Northern Isles (Orkney and Shetland) than to mainland Scotland. Noting their Scandinavian history and outlook, any reticence about joining an independent Scotland could impact the UKCS 'carve-up'. Recent discussions over further autonomy for island communities (essentially devolution within devolution)



The existing offshore borders create an 'area of uncertainty' that contains 2% of UKCS reserves. If Scotland becomes independent, treaties will be needed for the likes of the CATS pipeline, which would deliver Scottish gas to the English (UK) shore

Scotland is self-sufficient in terms of oil & gas and power generation. Historically, it has also met demand across the border but since devolution, energy policies within the UK have diverged. Holyrood opposes future nuclear development while Westminster is pressing ahead with a new generation of reactors in England.

are intended to placate this. It is also feasible that neighbouring North Sea states, including Norway and Denmark, could seek renegotiation of their maritime boundaries with Scotland but this has received less attention to date.

For chemical and process engineers employed in the industry, Aberdeen would logically continue to service the Scottish offshore sector, and provide an international technology, services and supply-chain hub.

outside influences

So, let's imagine that the referendum results in a split and Scotland now owns 85% of UKCS reserves. Once the Scottish government takes control of the oil, it needs to deal with a number of significant external pressures.

"It's Scotland's oil" proved an emotive SNP slogan in the 1970s but in today's debate, the Scottish government recognises the importance of stability. To encourage continued investment, the government plans to engage with industry and to honour existing licences post-independence.

As more participants enter and as decommissioning commences, DECC and the HSE are already finding their resources strained. Furthermore, Sir Ian Wood's recent interim report recommends increased government-industry interaction to ensure maximum economic recovery (MER). New Scottish regulatory bodies would therefore inherit a challenging workload although industry would expect a seamless transition.

There is likely to be influence from outside of the UK as recent buyouts of Nexen and Talisman have given China control of 10% of UKCS production. Aside from profits disappearing abroad, concerns have been expressed over external political pressures. Investment decisions by multi-nationals, comparing projects across their global portfolios, could also have a major impact on Scotland. Government intervention helped to resolve the recent Ineos Grangemouth dispute and prevent the site from closing down. Post-independence, such infrastructure would become even more critical; industrial action, unplanned outages or severe weather could cause major disruption to the national economy.

maintaining a balance

With state ownership long-divested, national

revenue from UKCS production comes solely from profits, currently taxed at 62% (or 81% for older fields paying petroleum revenue tax). Whilst the UK treasury has been criticised for creating fiscal uncertainty, including a surprise 12% increase in supplementary charge in 2011, it has also proven responsive. In addition to tax cuts made when oil prices have fallen, it has provided stimulus through tax incentives, including for heavy oil developments.

By contrast, the Dutch system fixes tax rates over the licence duration; industry gets stability but government cannot respond to fluctuations in oil and gas prices. The Scottish government has pledged to not increase the overall tax burden, but a tricky balance remains: how to stimulate long-term investment without sacrificing short-term tax income. The Scottish government has also recognised the importance of smaller operators, and proposes to resolve tax anomalies that allow only the larger players to offset or carry forward any exploration losses.

UKCS revenues of around £300bn have been spent across the UK as they've been earned. The Scottish government says such a sum could have made an independent Scotland extremely prosperous, citing the £450bn accumulated in Norway's 'oil fund'. It has proposed setting up a Scottish fund upon independence, although others consider this incompatible with Scotland's inherited share of UK debt and spending commitments in areas such as pensions and healthcare. Such a fund could instead form a 'stabilisation pot' – buffering against swings in revenue driven by factors such as falling oil prices that lie outside of Scotland's control.

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Upon independence, the remainder of the UK would be Scotland's only direct export market but could also provide competition. Gas from the Scottish sector could be undercut should England's shale gas reserves prove economically viable.



The United Kingdom

The United Kingdom (UK) consists of four countries: England, Scotland, Wales and Northern Ireland.

Historically, the UK was governed highly centrally from Westminster in London. In 1999, a new Scottish parliament – Holyrood – opened in Edinburgh with limited powers relating to the likes of health and education. Former Labour minister George Robertson was a key proponent of devolution claiming it would “kill nationalism stone dead”, ending demands for independence.

Once operational, however, devolution rapidly deviated from any such design intent. The 2011 election was won outright by the pro-independence Scottish National Party (SNP), which legislated to hold a referendum. The date is set for 18 September 2014.

The Scottish government has identified significant offshore renewables potential but heavy subsidies could be necessary. Unless a continental power link can be established with other European countries, the exported power would have to compete solely in the remainder of the UK market.

decommissioning promise

UKCS decommissioning liabilities total some £35bn, and most of these could transfer to Scotland post-independence even though the assets' lifetime tax revenue was paid to the UK treasury.

Currently, the UK government provides 50% tax relief (75% for petroleum revenue tax fields) but if the field operator defaults, it must cover any shortfall to ensure compliance with international obligations (UNCLOS 1982, OSPAR 98/3).

As a result, something of a Mexican stand-off exists. The UK government worries that it could acquire default liabilities whilst the operator worries that tax relief could disappear in the future. The UK government sought to address the former by creating decommissioning security arrangements (DSAs) that require companies to put provisions in place to meet future costs and the latter via tax relief guarantees known as decommissioning relief deeds (DRDs). In the meantime, both government and industry choose to delay decommissioning as it defers expenditure and supports new tie-backs via mature infrastructure.

To maintain industry confidence, the Scottish government has pledged similar contractual certainties to DRDs although this could prove a burden if it cannot secure a contribution from the UK.

Government and industry recognise that decommissioning offers major engineering opportunities. Lerwick in Shetland has positioned itself as a hub for decommissioning activities while any technologies developed and experiences gained have major export potential.

what about the EU?

If Scotland voted for independence it would be the first time that application for European Union (EU) membership has come from a country that has broken away from an existing member. The situation presents a series of

contentious precedents and would likely result in protracted negotiations.

The UK is an EU member state which enjoys key 'opt-outs' including retention of its pound sterling currency. The Scottish government contends that Scotland would automatically become a new member state retaining the UK's special terms allowing it to create a 'sterling union' with the remainder of the UK. The UK chancellor George Osborne thinks differently however, saying: "If Scotland walks away from the UK, it walks away from the UK pound."

Furthermore, it's not clear that Scotland would be automatically granted EU membership as all 28 existing members must ratify new applicants. Such states as Spain (if concerned over possible Basque and Catalan breakaways) could express reservations in future, leading European Commission president Jose Manuel Barroso to describe Scottish entry as "extremely difficult, if not impossible."

Separation could also see Scotland have to defend its prized offshore oil and gas reserves, the largest in the EU. Following the BP *Deepwater Horizon* incident (2010), the EU sought to create pan-European legislation for offshore health and safety. The UK pushed for a re-think, concerned that this could have proven the 'thin end of the wedge' with the EU ultimately assuming control over a shared offshore resource, as occurred with fishing rights.

Alternatively, Scotland could follow Norway, which also has North Sea resources and a similar population, and opted not to join the EU. Whilst the Scottish sector may be too mature to foster an equivalent to Norway's highly-successful NOC Statoil, if unencumbered by EU law, options for state ownership and opportunities for local businesses and employees could be explored. Norway, incidentally, is not an example of pure state control as many believe, as multi-nationals have invested heavily there from the very start.

If Scotland finds itself outside the EU, the residency and work status of its EU workers may have to be reviewed. Demand for imported skills in the Scottish sector, such as in chemical engineering, won't disappear overnight, however.

what if Scotland says 'no'?

Opinion polling currently predicts a 'no' at the referendum but indicates strong interest in further devolution. The Scotland Act 2012 will soon devolve further powers to Holyrood whilst 'Devo Max' is a commonly-discussed concept understood to mean a major power transfer just short of independence. Should devolution continue, oil & gas could well come under Holyrood control.

Joint management of these resources by Westminster and Holyrood is an option, although global experience suggests such arrangements can lead to tensions. In Canada, Newfoundland's offshore development has been hampered by provincial government disputes with oil majors and the federal government over such matters as local employment opportunities. The UKCS presently forms just 2% of the UK economy. Furthermore, whilst the Scottish government has identified some £31–57bn of future tax revenue, such values are considered susceptible to an oil price decline. As sector value diminishes, it could go the way of earlier UK heavy industries such as shipbuilding which became dependent upon state aid as decline set in. Upon full devolution, Holyrood could consider providing support given oil's ongoing importance in the Scottish context. As a parallel, Denmark recently acquired 20% state equity in the Dansk Undergrunds Consortium (DUC) to support its maturing sector.

conclusion

An opponent of devolution, former Labour MP Tam Dalyell considered it "a motorway without exits to independence"; the 2014 referendum will certainly test this assertion. Irrespective of its outcome, the UKCS faces challenges that would be magnified in the context of a separate Scottish economy. From an industry perspective, continuity is key – whichever government provides this is of secondary importance. Boundary issues, licensing, regulation and taxation all require early resolution. Although the Scottish government would finally assume powers and revenues, external influences and challenges would be significant. While constitutional change cannot be ruled out, opportunities and challenges exist for chemical engineers as the UKCS enters a new and exciting phase. **tce**

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Chemical Engineering Matters

The topics discussed in this article refer to the following lines on the vistas of IChemE's technical strategy document *Chemical Engineering Matters*:



Energy Lines 3–4, 7, 10

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