

**Possible Implications for Science and
Engineering in Scotland in the
Independence Debate**

**A response from the Institute of Physics to a Scottish
Science Advisory Council consultation.**

24 May 2013

**A full list of the Institute's submissions to consultations
and inquiries can be viewed at www.iop.org**

Scottish Science Advisory Council
Room 1N:11
St Andrew's House
Regent Road
Edinburgh
EH1 3DG

IOP | Institute of Physics
In Scotland

Dear Professor Muffy Calder and Dr Chris Masters

The Institute of Physics in Scotland is a scientific membership organisation devoted to increasing the understanding and application of physics. It has nearly 3000 members and is part of the Institute of Physics.

The Institute of Physics (IOP) is a scientific charity devoted to increasing the practice, understanding and application of physics. It has a worldwide membership of around 50,000 and is a leading communicator of physics-related science to all audiences, from specialists through to government and the general public. Its publishing company, IOP Publishing, is a world leader in scientific publishing and the electronic dissemination of physics.

IOP welcomes the opportunity to respond to the Scottish Science Advisory Council's consultation on the possible implications for science and engineering in Scotland in the independence debate. The attached annex details our response to the questions listed in the consultation.

If you need any further information on the points raised, please do not hesitate to contact us.

Yours sincerely,



Professor Frances Saunders, President-Elect



Professor Peter Main, Director Education and Science

IOP Response to “Possible Implications for Science and Engineering in Scotland in the Independence Debate”

While Scottish independence would clearly have an impact on Science and Engineering in Scotland (and the rest of the UK), arguably, the greater impact will be from the policies implemented by the Government of the time, whether that is from Westminster or Holyrood.

Research in universities

A report published by the Scottish Government in 2009¹ stated “In most subject areas, Scottish research represents between 11-13% of the total UK output”. Scotland also performs better than the rest of the UK in many other measures of scientific excellence² and Scotland attracts proportionately more funding from UK Research Councils than the rest of the UK.

In 2009/10 Scotland won³:

- 15 per cent of all funding allocated to UK universities by the BIS research councils, Royal Society and British Academy
- 15 per cent of all funding allocated to UK universities by UK charitable organisations
- 17 per cent of all funding allocated to UK universities by UK industry, commerce and public corporations.

The transition from RCUK would have to be managed carefully in order to maintain current funding levels. If the SFC took over the RCUK function, there may be an opportunity for more joined up thinking on teaching and research. There is clearly a need to manage any transition of research funding in the short term to cover existing projects: of particular sensitivity would be collaborative and “rolling” grants. However, in the longer term, unless Scotland chose to remain as a “virtual” member of RCUK, which seems unlikely, the IOP would expect that Scotland would need to set up its own funding infrastructure.

Other possibilities could be considered, such as forming research funding liaisons with the Nordic institutions. Nevertheless, the funding of research is primarily dependent on the political will of the current Government, whether that is of the UK or of an independent Scotland.

Other considerations will include the management of the process for the Research Excellence Framework (REF). If the Scottish Funding Council (SFC) has to implement a system for the REF, it will increase their administrative burden.

An independent Scottish Government will also need to consider how funding from UK charities such as the Wellcome Trust and the Leverhulme Trust will be maintained. One possibility might be for Scotland to maintain a liaison with RCUK and pay it to administer research grants and access to the central facilities the way it is doing now. Partnerships with UK facilities, such as ISIS and Diamond, will have to be

¹ Source: Scottish Government, international comparative research performance 2009

² Universities Scotland: University research, facts and figures 2011

³ Universities Scotland: University research, facts and figures 2011

renegotiated. In particular, the future of the ATC will be of particular importance to Scotland. Again, a subscription to RCUK might be the easiest way to overcome these issues.

Uncertainty will also surround access to funding from the European Union (EU), although should the rest of the UK vote to leave the EU and Scotland stays within the EU or negotiates accession, independence could be seen as advantageous in this respect.

There is an argument that, should Scotland become independent, there could be a reduction in collaborations and exchange of ideas with researchers in the rest of the UK and effort would have to be made to preserve the interchange, which enhances the quality of some research.

Access to international science facilities

Currently, research groups in Scotland have excellent access to international science facilities such as the accelerators at CERN, the telescopes of the European Southern Observatory (ESO) and the space missions of the European Space Agency (ESA), for example, through subscription funding from the UK research councils. The Government of an independent Scotland would have to renegotiate access to these facilities with various bodies, such as CERN, ESO and ESA, and provide sufficient funds to secure that access. Currently RCUK facilitates research with international partners.

Students at Scottish universities

If Scotland becomes independent, the fee regime for students at Scottish universities will have to be considered. Currently, students from England pay fees, while those from the rest of the EU do not. This raises the question of whether English students applying to Scottish universities would then be charged (or not) on equal terms as other EU citizens.

Immigration issues

Currently, immigration issues are reserved to Westminster and there have been concerns that increasing restrictions limit the opportunities for research groups to attract leading international experts, as well as students. Arguably the Government of an independent Scotland may set in place a more favourable immigration system to the benefit of science and engineering in Scotland.

Implications for science and engineering in business

There are major uncertainties as to how international companies currently based in Scotland will view a move to independence. In the short term, inward investors may be discouraged from coming to Scotland until they know what the tax regime is likely to be. It could be advantageous to Scotland to be clear on such issues as a tax regime in advance to prevent such a hiatus.

In particular, the amount of spending on defence in an independent Scotland might be a deciding factor as to whether large defence contractors stay in Scotland or not. SELEX in Edinburgh alone contributes about a fifth of all Scotland's business spend on research and development. If Scotland were to choose not to keep pace with UK defence spending then alternative plans are likely to be needed if companies like SELEX and Thales are to remain long-term residents.

Technology, innovation and knowledge transfer

The Technology Strategy Board currently encourages the exploitation of emerging technologies and facilitates knowledge transfer between universities and industry across the whole of the UK. There are organisations within Scotland which are also

tasked with similar objectives, but it could be argued that independence for Scotland will reduce opportunities to transfer knowledge, given the current success of the TSB. That said, it might possibly be argued that Scotland is a large enough entity to produce excellent innovation, while small enough to exploit it in an effective manner.

Despite Scotland's excellence in research, its translation into the economy has been relatively poor. An independent Scotland would need to consider how better to convert excellent research into economic benefits⁴.

Public engagement with science

Currently many initiatives designed to engage the public with science, technology engineering and mathematics, such as the STEM ambassador scheme, Primary Engineer, National Science and Engineering week are organised on a UK basis. These organisations provide innovative learning initiatives throughout the UK and an independent Scotland would need to consider how the current funding regime will be changed to reflect the different governance.

⁴ Scottish Science Advisory Council: Making the most of our Scientific Excellence 2013

The Institute of Physics is a scientific charity devoted to increasing the practice, understanding and application of physics. It has a worldwide membership of over 50,000 (3,000 in Scotland) and is a leading communicator of physics-related science to all audiences, from specialists through to government and the general public. The Institute of Physics represents its members in Scotland through an active volunteer network and two members of staff based in Scotland.

IOP | Institute of Physics
In Scotland

22-26 George Street
Edinburgh
EH2 2PQ

Tel: +44 (0) 7917855940

Email: alison.mclure@iop.org

Website: <http://www.iopscotland.org>

Registration No SC040092