

Chairperson: Dr Peter van der Burgt

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Massey Avenue  
Belfast  
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18<sup>th</sup> October 2013

**Re: Consultation on the Northern Ireland ERDF Investment for Growth and Jobs Programme 2014-202**

Dear Mr Welsh

The Institute of Physics in Ireland welcomes the opportunity to submit a response to this consultation.

The Institute of Physics is a leading scientific society. We are a charitable organisation with a worldwide membership of more than 50,000, working together to advance physics education, research and application. We engage with policymakers and the general public to develop awareness and understanding of the value of physics and, through IOP Publishing, we are world leaders in professional scientific communications.

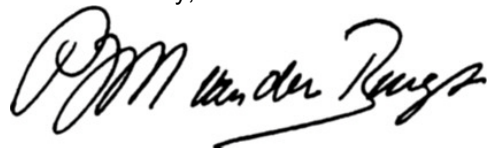
The Institute of Physics in Ireland is a scientific membership organisation devoted to increasing the understanding and application of physics in Northern Ireland and the Republic of Ireland. It has over 2000 members, and is part of the Institute of Physics.

This submission was prepared in consultation with the IOP in Ireland's governing committee, the Institute's Business and Innovation Board, with input from members of the Institute members working in small and large businesses that depend on physics.

The attached document highlights key issues of concern to the Institute.

If you require any further information or clarification, please do not hesitate to contact the Institute at the above address.

Yours sincerely,



Dr. Peter van der Burgt  
Chairperson  
Institute of Physics in Ireland

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## Consultation on the Northern Ireland ERDF Investment for Growth and Jobs Programme 2014-2020

### Consultation Response Form

The responses to the consultation questions set out below will play an important part in the preparation of the final text of the Operational Programme, which the Department of Enterprise, Trade and Investment is aiming to submit to the European Commission later this year. Views are sought from all those with an

Your name:

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### Contact details

Please send completed Consultation Response Forms to:

Harry Welsh

European Support Unit

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Massey Avenue

Belfast

BT4 2JP

Alternatively please return your completed Consultation Response Form by e-mail to: [ESU-IGJ@detini.gov.uk](mailto:ESU-IGJ@detini.gov.uk)

Responses are sought by **21/10/2013**. We regret that late responses cannot be considered.

If you have any queries, please contact Harry Welsh on 028 90529618.

## Consultation on the Northern Ireland ERDF Investment for Growth and Jobs Programme 2014-2020

### Consultation Response Form

The following questions are designed to help structure the responses to this Consultation Document:

#### ERDF Priorities

1. Do you agree that we should focus on the three selected Priorities i.e.
  - Strengthening Research, Technological Development and Innovation
  - Enhancing the Competitiveness of SMEs by improving access to finance
  - Supporting the shift towards a Low-Carbon Economy

yes				
Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree

Please add in any reasons for your response in the box below:

Given the limited nature of the resources available it is essential that priorities should be identified. The three areas which have been selected are highly important to the revitalisation of the Northern Ireland economy. In particular, the Institute considers that strengthening the research, technological development and innovation base is key to the economy.

Policymakers and economists are generally in agreement that innovation is a major driver of growth and a critical aspect of innovation is physics.

In the UK, physics-based businesses have long punched above their weight in the economy, accounting for as many jobs as the construction sectors and as much gross value added as finance, banking and insurance.<sup>(i)</sup> Areas such as communications, medical technology, space industry and energy are all significant drivers in the UK economy. In addition these are highly productive jobs with a Gross Value Added (GVA) per employee which is twice the UK average. In Northern Ireland such businesses contribute 8.8% of Northern Ireland's economic output – more than £1.5 bn – and employ nearly 27,000 people.<sup>(ii)</sup>

Given Northern Ireland's current low GVA per employee, which is around 20% lower than the UK average<sup>(iii)</sup>, it is clear that it is growth in this type of employment which is essential for the region. In this context, support for SMEs is particularly important in order to give them access to the capital which will allow them to innovate.

Underpinning the successes of physics based business is investment in research and it must be understood that this is a long term process with returns only being seen on a time scale of tens of years. However, it is vital that such investment in research is not subject to short term 'on - off' cycles. This destroys the momentum and expertise which is built up in research labs over many years.

In relation to supporting the shift towards a Low-Carbon economy, it is clear that this is an important element for both the N. Ireland economy and the environment and the IOP supports this move.

(i). The Importance of Physics to the UK Economy 2012.  
[http://www.iop.org/publications/iop/2012/page\\_58712.html](http://www.iop.org/publications/iop/2012/page_58712.html)

(ii) The Importance of Physics to the Northern Ireland Economy 2012.  
[http://www.iop.org/publications/iop/2012/page\\_58982.html](http://www.iop.org/publications/iop/2012/page_58982.html)

(iii). Figures from Invest NI.  
<http://ec.europa.eu/enterprise/policies/innovation/policy/regional-innovation/monitor/index.cfm?q=p.organisation&n=13477>

2. Are the Programme proposals sufficiently focused, given the limited resources likely to be available for Northern Ireland?

yes

Yes

No

Please add in any reasons for your response in the box below:

### Implementation arrangements

3. What are your views on the proposed interventions identified under each of the three Priorities (see Chapter 6)?

The IOP agrees with the proposed interventions.

#### **SME Supports**

Small science-driven firms, in particular, require access to finance. Provision of long-term investment in start-ups through a large-scale, research-focused venture capital fund would be a highly important measure to assist young companies in Northern Ireland to innovate and expand. The Institute also believes that there should be consideration given to easing the regulatory burden on venture capitalists and angel investors.

There is currently an acute shortage of funds accessible to smaller science-based businesses seeking investment. Such companies play a key role in the innovation economy bringing science knowledge and disruptive technologies to the market. These businesses often require several years between the initial development of a product, to sales and eventually profit-making. As such, it is long-term investment that is essential

for the success of these businesses. The recession, combined with its effect on the banking system has created a perfect storm for the finances of smaller science-based businesses and additional, focused support is needed.

### Low Carbon Economy

Because of the natural variability of the environmental sources of most renewable supplies (e.g. wind power), strategies are needed for their significant integration with present supplies. This particularly applies to electricity supply, where all forms of generation require national 'back-up' because of power plant and grid failures.

However, the present system will not be able to support the 35-45% of variable renewable generation that is generally considered necessary to meet the EU 2020 renewables target. The location of the most productive projects – wind, tidal and wave – will require extensive new transmission lines or undersea cables; Because the connection has to be capable of taking the full output, but the load factor of the best wind farms is only around 35%, it follows that the cost of connection to them per unit of electricity produced is about 2.5 times that of a conventional generator of the same maximum output and a typical load factor of 90% or more. Undersea cables will be more expensive than overhead lines of the same capacity. As the penetration of variable generation rises to the levels anticipated for 2020 and beyond, it will be necessary to maintain and possibly increase the capacity of conventional generating plant to serve the concomitant increased requirement for system balancing and reserve.

### Energy storage

One fundamental, but little mentioned approach to easing the problems of variable generation is the provision of energy storage, whether electrochemically as electricity (i.e. batteries and super-capacitors) or in other forms from which it can readily be converted, for example, stored water in barrages, pumped water and compressed air. An additional approach might be termed 'pseudo-storage' in which amenable loads such as heating, refrigeration and possibly air-conditioning are time-shifted to accommodate short-term variations, possibly assisted by the addition of thermal capacity to the installation. This last approach could be applied at various scales – from commercial and industrial to domestic and could include a contribution from time-shifting the recharging of electric vehicles. We believe that all these approaches are amenable to considerable development, many without major technological breakthroughs. All should be part of an integrated long-term strategy for Grid access and management

4. Are the proposed delivery mechanisms appropriate?

yes		
Completely	To some extent	Not at all

Please add in any reasons for your response in the box below:

The delivery mechanisms relating to support for research and innovation are appropriate. The Institute is not in a position to comment on the proposals relating to tourism.

5. How might the implementation of the programme be simplified and streamlined?

Support is needed for SMEs to take advantage of funding opportunities, particularly to have close links with university based research.

6. We have asked a number of specific questions. If you have any related issues which we have not specifically addressed, please use this space to report them:

**Responses to consultations may be made public – on the internet or in a report. If you would prefer your response to be kept confidential, please tick here (Please refer to our Privacy Statement at Chapter 11):**