Neil Copeland
Ofgem
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Dear Neil,

Reviewing the benefits of the Low Carbon Networks Fund and the governance of the Network Innovation Competition and the Network Innovation Allowance

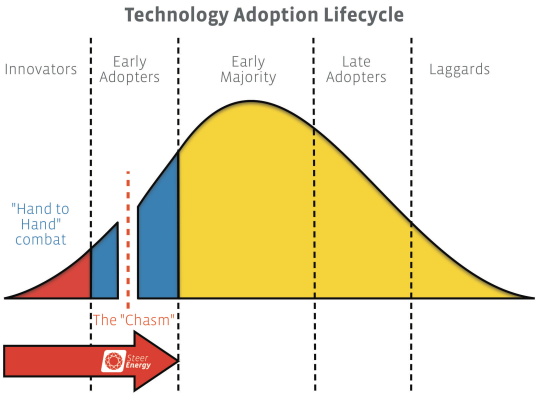
I am writing to you regarding the recent consultant call reviewing the benefits of the Low Carbon Networks Fund as well as the governance of the NIC and NIA.

Steer Energy Solutions Ltd has direct experience of the NIA funding within the context of the gas distribution system as well as over 15 years of obtaining Research and Development funding from the Upstream Oil and Gas industry from the UK, Norway, US, and Middle East.

To give context to this, my fellow director Nick Ryan, and I (CV's can be accessed here > Iain Chirnside, Nick Ryan) were developers and founders of a particular technology from a University laboratory through to spin out of a technology company from that establishment in 2002, 4 years organic growth to over £1m revenues, selling of part of the company to a private equity firm alongside circa £2m investment into company, and the ongoing commercialization of the technology. This was through a technology known as 'Platelet Technology' (now owned by Seal-tite Inc) for the sealing of leaks in oil pipelines and wells - we won a number of innovation awards, and up to end 2011, our company (Brinker Technology) had obtained revenues of around £10m and had approximately 15 patent applications.

In addition to the Upstream Oil and Gas sector, the company also sought to deliver a similar technology into the water industry primarily through a 3 year exclusive contract with Yorkshire Water, alongside a feasibility projects for Scottish Water, Suez Environmental, and the Abu Dhabi Water Authority, between 2005 - 2010.

Nick and I set up Steer Energy Solutions in 2012 with the aim of delivering innovative products to the International Energy marketplace. We seek to identify, develop and deploy ideas, products and services from the lab into the field offering new, alternative and more productive ways of working for and to their clients. We creatively combine fundamental science and engineering with commercial understanding to deliver solutions to problems. Through this company, we are creating a multi-disciplined technology development community of established and emerging specialist technology organisations and individuals working across disciplines and beyond the energy sector.



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We work specifically in the areas of innovators and early adopters, with a licensing model to allow for the rolling out of technology to the 'business as usual' sectors. This allows us to focus on and excel at getting technologies over the 'chasm' where most new technologies fail in the area between clients that are 'innovators' and those that are 'early adopters' (noting that one can have multiple types of 'clients' within one organization).

We are fortunate enough to be able to call: Worldwide Operators, National Oil Companies, Service Companies, High Growth VC-backed technology companies and niche technology providers amongst our Steer Energy clients, and so have been involved with a wide range of different technologies being brought to market and used in the field. We have also acquired an appreciation of the various Research and Development funding options – private, Governmental grants, leveraged, Venture Capital provision, or Jointly funded Industry Projects (multiple operators funding the work).

An Upstream Energy project for one of our technology clients led us into discussions with a GDN (Scotia Gas Networks) in 2012. Following on from that initial discussion, it was seen that there was significant cross-over in what we were interesting in pursing as well as what technology projects SGN wished to move forward. We now have had 6 projects funded by SGN totally just over £900k around the area of pipeline integrity as detailed in the table below.

Project Title	Value	Completed?
Seeker Particles	£80,200	Yes
Seeker Particles Stg 2	£223,716	Yes
Aerosol Sealant Stg 1	£130,654	Due Q1 2016
Gas Polymerisation Stg 1	£112,650	Yes
Gas Polymerisation Stg 2	£246,500	Due Q1 2017
Solutions to Pipeline Graphitisation and Corrosion Stg 1	£109,775	Due Q1 2016

We therefore believe that we have a high level of understanding and appreciation of the NIA system from a small company perspective, as well as experience in developing technologies for other industries (upstream oil and gas, and water) and therefore alternative systems of encouraging and promoting technology advancement.

We have read through the associated documentation with this consultation closing on the 4th February 2016 and have addressed the questions that we have an input into below.

Question 1: Should we change the NIC and NIA criteria? If so how and why?

Taking this first question, one of the issues that we can see is ensuring the 'financial benefits' to customers and how this is determined (what is good value, and how to make sure that there are the right financial benefits to all parties so that they are aligned appropriately). Essentially, technologies require four key components to ensure success and its only when each of these are optimised that the full financial benefit to the customer be appreciated and determined:

- the **right technology**
- in the **right application**
- with the **right operational procedure**
- at the **right cost**

There is therefore a relationship which needs to be balanced between the commercial incentives for the developer to move the technology forward and the return of investment that the client achieves. Sometimes the value is actually in a smaller percentage 'royality' for the client which allows the technology developer to

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widen the application(s) for the technology and therefore provide the client in the end with a higher financial level of return, or more economical operations.

In the early stages of technology development, it is often not clear how the technology is best commercialised and therefore how the customer can best benefit. Allowing the GDN's to state their preferred 'mode' of commercialisation (such as a set % percentage of Royalties, for example) at a 'Proof of Concept' stage, or low TRL level, in the NIA / NIC contracts, it might be that more appropriate and more aligned terms and conditions might be missed, if this is rolled out throughout the lifetime of the technology development.

Looking at a different sector as an example of funding R&D projects, the Industry Technology Facilitator (ITF, www.oil-itf.com) is a 'not-for-profit' organization that represents a number of international (upstream and downstream) oil and gas operating and service companies to bring forward collaborative funding for research and development initiatives that address shared technology challenges. It seeks to work with its members, the technology development community and government bodies to tackle specific regional issues as well as defining areas of technology need from a global perspective and identifying opportunities for transfer of knowledge and expertise. It is suggested that, if not done so already, Ofgem should contact ITF to understand their 'standard contract' options (a link can be found here, though this does not include the payback terms, which are commercially sensitive). Our understanding from previous projects is that they have a 'pick and mix' approach where the clients funding the work can obtain their 'investment' back in a number of different options (or a combination):

- Exclusive use of the technology (time limited) and / or priority of use of the technology
- The return of investment is generally achieved through (i) a % of the Net Sales Price either as a reduction on the particular clients purchasing of the service / technology or (ii) as a % of the Net Sales Price on other clients purchasing of the service / technology or (iii) both.
- The level of return can be limited (ie X times the original investment, often x1, outlining that the key issue is improvements and financial benefits that the client gets from the use of the technology rather than asking for the technology company to pay that back)
- The return is generally time limited (ie up to X years from the kick off of the project / end of the project).

This allows the technology development company to have a degree in flexibility in how the commercial terms might be set up and presented, but crucially all the ownership of the Intellectual Property was retained within the developing company (allowing the developers to gain from the Government's Patent Box scheme as well).

In order to protect the funders' rights, there is a clause which allows the funders to reclaim the ownership of IP if reasonable endeavors are not carried out in terms of the commercialisation of the developed technology.

It should be noted that this scheme was targeted towards the niche technology developers and therefore larger service companies would be dealt with in a different way (in the Upstream oil and gas context, they were often part funders of the SMEs work). The same should be true within NIA / NIC schemes where a large service provider should be dealt with in a different way to a small technology provider to provide a reasonable balance and encourage development across the different types of companies.

It also deals with the issue of foreground / background IP in a far simpler contract terms than the contracts that we have seen used for NIA funding.

We will come back to the issue of the Industry Technology Facilitator in a later question to outline why this may have detrimental impact on technology development if applied within the NIA / NIC context.

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Question 2: Should we give more of an indication of where we consider innovation is required or is that inappropriate?

A balance between directing innovation and responding to innovative ideas is required to ensure that the full benefits of the funding can be obtained.

It is helpful to have 'calls' for innovative ideas and projects where there are a number of interested funding parties so that the technology providers can respond directly. This will allow new technology developers from other industries to understand the particular challenges faced in a simple way and facilitate technology transfer. It should also allow technology companies to offer alternative options in areas / sectors which are not necessarily their normal offering – one of the issues at the moment is that if there is a flange problem (for example), the operators will often go to the flange manufacturers, leading to a 'flange' solution – often this means that the state-of-the-art is not moved forward as much as if we had technology or sector-transfer of ideas, and fresh eyes on the challenges faced.

Funders should also have the flexibility to ensure they can access the benefits of the NIA and NIC funding for particular innovation projects where there is a key champion within their organisation and are therefore not restricted by technology 'calls'. This allows them to drive the funding to their requirements rather than a combined project.

We have found that having a 'champion' within the end user is vital in order for the well running and positive outcomes of any technology development when rolling out to business as usual. It is very clear to technology providers when key personnel are not interested in the outcomes of any particular work (often when there is the use of a facilitator, independently managing the R&D and therefore having slightly different view or requirements than the end user), and when this occurs it is very difficult to move the technology through the technology readiness stages and onwards to a product that providers benefits to the end user as well as the right commercial model (allowing the technology provider to fund further development work).

Without that 'Project Champion' within the GDN, we would have significant concerns about the feasibility and the speed to embedding any developed technology within the gas distribution network.

We would therefore have significant issues about 'calls' for particular innovations being managed by an independent third party where there will be a gap between the developer and the end use, and free communication is vital as is known the particular technical and commercial challenges – without the easy access to the end user, this would be difficult to ensure it happens in a correct manner. We believe that this is sometimes where the ITF model falls short, and leads to a number of technology companies not being able to get over the hurdle of achieving the first field use (and therefore commercial viability).

Question 6: Please comment on your experiences if you have worked with licensees when implementing NIC and NIA projects or when transferring innovation into business as usual.

Our projects have not moved into 'business as usual' phase yet, but we have had extremely positive working relationship with Scotia Gas Networks throughout the process to date. This has evolved as both parties have understood what is required in the relationship, and we have found SGN to be a particularly helpful client, and aware of the significantly different requirements that a SME will have when compared to a large service organisation.

They were understanding and willing to explore options in terms of deal with issues that we were having with obtaining the required professional indemnity insurance for the technology as well as ensuring that our payment terms allowed us to be near cash positive throughout the projects. They have also been proactive in introducing us to their other project developers.

We have also found that when wishing to speak to individuals who are likely to end up having to assist with the implementation of our technologies within the Operations teams, our client has been helpful in arranging this quickly. Having worked in the past with 'facilitating' bodies on R&D projects, we have often found that

this provides a barrier, albeit one that is sometimes not meant to occur but a barrier nevertheless to allow the technology developer to engage with the full extent of the challenge to be addressed.

It is understood from our previous experience in working with large utilities companies that there can be a significant disconnect between the R&D unit and the Operations Team and therefore this needs to be addressed at the appropriate time in the development and commercialisation of any new technology.

Question 7: Are there any other issues we and the independent evaluator should consider as part of the review?

For us, the experience as an SME engaging with the NIA mechanism has been, on the whole, a positive one. We have benefitted from a client and a funder who is engaged with the process and is helpful to our learning process, having come from other industries into the distribution gas network one.

We are also pleased that we have 'Project Champions' within the NIA system directly from the GDNs, and state that moving this to a situation where there was an overarching 'facilitator' would not be helpful in order to deliver appropriately targeted and supported innovation projects.

Should you require any further information, we would be happy to discuss this with yourself or colleagues.

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Kind regards,

Iain Chirnside

Director – Steer Energy