GE Response to Ofgem Consultation:
Consultation on the Design of the Network Innovation Competition (NIC)
17 October 2011

Introduction

GE supports the development of the Network Innovation Competition (NIC). Earlier this year we supported Ofgem's efforts to develop the new RIIO Framework and in particular welcome the critical role of innovation in the new regulatory landscape for network companies.

We are one of the world's leading suppliers of power generation and energy delivery technologies and supply an unparalleled range of energy solutions to the UK of which smart grid technologies are one part.

In the UK, GE employs around 18,000 people and has invested over £14 billion in the UK economy since 2000. Our available installed base meets 18% of electricity needs and we are also a major smart grid solutions supplier to the UK electricity networks industry. Together with wider expertise in consumer & industrial appliances and smart meter technologies our activities encompass the entire length of the energy chain from generation to consumption.

Reflecting our commitment to thought-leadership in this field, GE opened Europe's first Smart Grid Centre in 2009 at its Bracknell HQ, supporting the UK in its effort to help consumers use energy more efficiently and cut carbon emissions. The centre offers a 'generation-to-appliances' view of energy-management.

Key Points

1. Committed to partnership with the UK Electricity Networks Industry

GE is a proud and committed partner to the UK energy sector and is a major participant in the Low Carbon Networks Fund (LCNF) in terms of projects and customers. We continually invest in innovative technology that meets the needs of customers and society, with as much as $150m directed globally towards low carbon network technologies. Much of this is invested in the UK and focused on reducing carbon emissions increasing energy efficiency.

GE brings global know-how and experience together with a proven track record for delivering solutions to the UK customer base. Examples of UK low carbon network progams that GE currently supports include:

- Modeling low carbon economy/ enabling low carbon services
- Smart Homes – focus on informing/empowering the customer
- Improving grid observability – MV/LV and consumers
- Virtual Power Plant – effective management of distributed energy resources
- Demand and Constraint Management – balancing future networks
- Thermal Dynamic Line Rating – maximizing use of existing lines, extending asset life.
- Energy storage – frequency regulation, peak demand management

These initiatives are demonstrating how carbon-reducing technologies can have a positive impact on the electricity networks, helping utilities plan more efficient, reliable, lower-carbon networks.

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2) Key Elements of the Network Innovation Competition

Main recommendations:

- GE's approach to smart grid deployment is based on core value propositions identified after extensive dialogue with partners and customers.
- We believe that innovation in the UK energy sector requires a multi-disciplinary approach and will be the product of new partnerships, fields and spheres of activity. If the UK is to meet its targets, commercial-scale deployments will be required within a very short timescale i.e. the next price control review. In order to meet this challenge, incentives to promote deployment will be needed.
- A dedicated innovation fund must continue to be an important element of the package to drive fully commercial-scale deployments as part of the wider regulatory framework for network companies. Whilst the LCNF is a crucial first step, the transition to the NIC regime will need to be carefully managed to maintain momentum and ensure there is no hiatus in investment in the period between 2013 and 2015.
- The nature of commercial and regulatory risk means that innovation is not a linear process that conforms to a rigid framework and applications timeline. There is evidence that a phased approach to evaluation and funding does not wholly address the upfront risks encountered by bid partners
- GE welcomes the opportunity that a lead technical partner offers DNO's as part of efforts to deploy low carbon technologies. However 'pre-bid' commercial risks encountered by such a partner are also not fully recognized at present and we would welcome further work to address this issue.

Non-network company participation:

- **Measures to facilitate non-network company participation: Do you agree with our proposals for facilitating non-network company participation in the NIC?**

GE is pleased that the nature of the innovation process and role of third parties has been more clearly acknowledged in this Ofgem NIC consultation.

GE believes innovation in the UK energy sector requires a multi-disciplinary approach and will be the product of new partnerships, fields and spheres of activity. If the UK is to meet its targets, fully commercial-scale deployments will be required within a very short timescale i.e. the next price control review.

In order to meet this challenge, incentives to promote a focus on deployable solutions will be needed with business cases for new technologies to be proven 'in life' and that address the full technical and commercial impact.

A feature of the move to smarter grids will be much greater levels of systems integration, which will challenge current industry structures. Network operators, supply companies, meter companies, local authorities and manufacturers, will all need to work closely together to make solutions seamless. To deliver the scale and pace of changes ahead, and, the complexity of integrating new with old, will required outside industry experience and resource.

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Competitive process and evaluation criteria:

- **Do you agree with our proposed two stage evaluation process and evaluation criteria?**

The NIC will adopt many of the principles applied in the LCNF, which in GE's view is an exemplar in Europe.

The 'two-stage' process, comprised of an Initial Screening Process (ISP) prior to a Full Submission stage, has proved to be a useful component of the LCN Fund process, as it limits the amount of development costs associated with unsuccessful project bids. However as we state later in this submission, there is evidence that the phased approach does not wholly address (and in some cases exacerbates) the upfront costs encountered by applicants. The LCNF bidding risks holding back compelling projects and increases the risks for bidders.

More work can be done to more fully understand the resources required to develop bids. The nature of innovation means that it is not a linear process that conforms to a rigid process and applications timeline.

Funding:

- **Do you agree that the transmission companies should raise the funding for the NIC, and that it should be borne by customers according to their network usage?**
- **Should network companies be funded to cover some or all of the preparation costs for submissions to the NIC? If so, is the Network Innovation Allowance (NIA) the best way to achieve this?**

GE supports the proposed financing arrangement via transmission companies. A dedicated innovation fund must continue as an integral part of the wider regulatory framework for network companies. Smart Grid can make a significant contribution to the effectiveness of national infrastructure capital spend programmers by helping network operators to achieve successful outcomes at lower CAPEX thus enabling lower cost bases which benefits all customers.

The LCNF is a crucial first step to identify solutions aimed at addressing the needs of today's grid. However the transition to the new NIC regime will need to be carefully managed to maintain momentum and ensure there is no hiatus in investment in the period between 2013 and 2015.

Under current proposals, the electricity competition will be for transmission only until the end of the current price control for electricity distribution (2015) at which point the LCN Fund will be incorporated into the electricity NIC and the funding amount reviewed. We are particularly concerned that the LCNF could be undersubscribed by DNO's between 2013-2015 as there won't be sufficient time to deliver any significant scale projects. This risks limiting the scope of projects and undermining the momentum built up to-date.

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Learning & Intellectual Property:

- **Do you agree with our approach to learning and intellectual property (IP) generated by the NIC? If not, please indicate how these arrangements could be improved.**

Yes. If the UK is to meet its targets, full commercial-scale deployments will be required within a very short timescale and incentives will be needed to promote deployment.

However, the emphasis on fully commercial-scale commercial trials remains important as opposed to early stage R&D in order to deliver existing technologies as quickly as possible. Otherwise the programme risks insufficient emphasis on the deployment - rather than development or demonstration. This could delay the benefits of innovation or lead to unintended projects being developed. Deployment of solutions will be key to meeting overall objectives to fully optimise the use of stimuli funding.

IP Rights are a key driver of private sector investment in low carbon innovation. Ownership of foreground IP is not a barrier to technology transfer but allows innovative companies to capture the value of R&D activity stimulating investment that would not otherwise occur. This allows a commercial model to deliver innovative solutions more cost-effectively and ensure smart grid delivery while keeping costs as low as possible for consumers.

Risk & Rewards:

- **Do you agree with our proposals to offer a successful delivery reward and protection against cost overruns?**

GE welcomes the opportunity that a lead technical partner offers DNO's as part of the LCNF process. However, it is also true that the risks encountered by such a partnership are not fully understood and that we would welcome further work to address this issue.

Innovation, by its nature, involves risks and the possibility of a project not delivering the anticipated outcomes, or costing more (or less) than anticipated. In a commercial environment, GE commits substantial sums and resource to identifying partners and developing commercially viable bids. Whilst assessing the upside commercial benefits to outweigh the potential risks we bear the risk if the bids do not succeed, yet if successful the majority of the rewards are often re-invested in the UK to benefit the wider economy.

GE understands the UK market given our local presence since the 1930's and develops solutions to address the risks inherent with a regulated market. Looking for broader range of partners (in terms of size, location and experience) is appropriate but should not undermine efforts to deploy proven technology in a short timescale.

Other comments – customer value propositions

GE's participation in a range of low carbon network and energy management programmes reflects our support and commitment to building consumer engagement in the UK. We feel that this important aspect has to be more fully addressed to support the successful deployment of innovation funds.

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GE has itself undertaken extensive research with partners and customers to develop a model that prioritises key value propositions and solutions. This is based on a modular approach based on Value Propositions that address financial, infrastructure, environmental, and consumer empowerment criteria.

Key propositions include:

- Optimize Network Assets
- Improve Network Efficiency
- Improve Service Reliability
- Manage Constraints
- Actively Manage Networks
- Enable Low Carbon economy
- Demand Management
- Empower “prosumers” (entities that are both producers & consumers)
- Virtual Power Plant

GE is also an active participant in a number of UK trials deigned to better understand consumer behavior. We helped a community of 800 homes in North Leigh, Oxfordshire to reduce its energy consumption by 10 percent for three consecutive months. The 2,000 villagers became some of the first people in the UK to have smart meters installed in their homes. The meters gathered real-time information that they fed back to the energy supplier. The supplier then shared information about individuals’ energy use on a website, helping them make informed choices to reduce demand.

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