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

Consultation response to Ofgem by Smarter Grid Solutions Ltd.

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Smarter Grid Solutions is a developer and implementer of novel power network management solutions. Our products and services are targeted at smarter, efficient integration of distributed generation (DG) and distributed energy resources (DER) into power systems to create value across stakeholders and timeframes. We also provide independent consultancy on a broader range of topics in the power sector in the UK and internationally.

Smarter Grid Solutions has been a significant beneficiary of innovation funding schemes starting with the Innovation Funding Incentive (IFI), Registered Power Zones (RPZ), Low Carbon Network Fund (LCNF) and Network Innovation Allowance (NIA). We have bid for Network Innovation Competition (NIC) as a partner and also as a supplier to an already granted DNO NIC project. Our experiences in these innovation projects have been very positive and we are pleased to be in a position to roll forward the outcomes to deliver value for the GB network customer through cheaper and quicker connections to distribution networks with new value streams and business models to come through the progression of local energy, new technologies integration, active customers and more integrated system planning and operation.

Innovation is crucial to the continued development of the GB power and energy system as it adapts to and derives value from the many possibilities that continue to emerge at a persistently rapid pace. A culture and infrastructure for innovation seems to us to be as, if not more, important than any specific innovative solution emerging from any single project and so we welcome Ofgem's review of innovation and provide honest and well-intentioned inputs to the specific questions below. We commend the positive approach of the GB DNOs that we have experienced as a participant in several innovation projects and thank our DNO partners for those opportunities. We acknowledge that the DNOs, with Ofgem, recognise that there is still much to do to address the energy trilemma through networks innovation; so a continued commitment is required to innovate and exploit the outcomes for commercial and customer value.

In addition to a strong view of the need for continued Ofgem intervention in the natural monopoly network operator innovation activities, we also note the need for further thinking and intervention to incentivise (financially and otherwise) the roll-out of innovation to deliver the potential value to customers. This attention to the innovation exploitation and roll-out question should cut across the

innovation life-cycle from inception through delivery and close out and into business as usual implementation of the outcomes – this is a general theme that we pick up on below.

We welcome the opportunity to discuss this further.

Graham Ault – Development Director (gault@smartergridsolutions.com)
Alan Gooding – Commercial Director
Laura Kane – Analyst

Smarter Grid Solutions Ltd
Corunna House
39 Cadogan Street
Glasgow
G2 7AB

smarter grid solutions

Responses to specific questions

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

A stronger commitment for DNOs to plan fully and effectively for innovation roll-out might aid in addressing the challenge that remains in exploiting the outcomes of innovation. This could be achieved through a criterion on the strength of the roll-out or exploitation plan for the methods trialled in any innovation project. A retained payment or additional incentive (beyond the SDRC which mostly targets delivery within the project timeframe) to be awarded through roll-out might directly target the exploitation of innovation results and this would augment the general incentives in RIIO with something directly linked to innovation programme outcomes. Fast pick-up and roll-out of innovation outcomes from other DNO projects could also be incentivised similarly.

One possible downside to the criteria that relate to uniqueness and novelty is the constructive use of duplication or alternative methods addressing the same challenge. DNOs who have not participated in the original innovation project are highly unlikely to acquire the organisational learning required to roll-out successful solutions quickly and widely. Technical learning can be achieved through dissemination via conferences, events, reports, etc. but organisational learning often requires a hands on approach – some means of duplication, sequenced/parallel projects in key areas or fast-follower innovation project opportunities could be useful. We note that not many collaborative projects have been brought forward or succeeded in the larger scale, competitive LCNF Tier 2 or NIC programmes and this could also address this issue. Various reasons for there being few collaborative projects in LCNF Tier 2 and NIC might be guessed but it is not clear – this might be any area worthy of further exploration in the review.

Smarter Grid Solutions example: Active Network Management (ANM) has proven a successful innovation outcome addressing the need for more choice and flexibility for generation/DER connection. Smarter Grid Solutions benefitted from successful trialling of the technology and associated commercial arrangements in DNO innovation projects. Evidence of DNO and customer value was clearly shown through quicker and cheaper connections for customers and significant capital savings for the DNOs. However, even with this welcome innovation success, the timeframe from first IFI project with associated RPZ in 2005/06 to the start of genuine business as usual (BAU) roll-out in GB networks around 2014/15 is significant. This might have been shortened with clearer incentives or obligations on roll-out tied into the innovation project application and delivery criteria. The implications of this long timeframe to BAU have likely been experienced by distributed generation customers to whom long connection timeframes and high connection costs have impacted on their plans.

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

We do not have a strong view but such an approach might be helpful in steering innovation into areas of clear priority (as emerge in stakeholder forums). There are hazards for Ofgem (with their advisers) in being too prescriptive as breakthrough novel solutions might unwittingly be side-lined or de-prioritised. So long as any project or novel idea is taken on its merits (whether it addresses a priority area or not) then there should be no reason why some preferred project topics cannot be introduced in parallel to the more open approach.

Example: One particular topic area that might be important and worthy of additional 'steer' are those that integrate and coordinate multiple smart solution in one network area. Many innovation projects have tackled single issues or at least single issues in the one network area (where multiple issues were tackled across a project). With the anticipated complexity of overlapping data, communications,

control schemes, cluster of heterogeneous customers and low carbon technology (LCT) devices, etc. it seems that this might be an area of real merit to address whole system issues in an integrated way.

Question 3: Should the focus of the NIC and NIA be broader and cover the broader energy system?

We note that several of the LCNF/NIC/NIA projects have included elements of the broader energy system elements beyond the realms of the networks themselves (e.g. heating, transport, active customers, other energy vectors, T-D interactions, etc.) so we do not think that a change in scope for the innovation programmes is necessary. However, with some exceptions, we do note that those wider scope projects have experienced significant challenges and possibly undershot the goals. The reasons for these issues have been complex but have included issues at the interface between regulated/non-competitive and competitive value streams, allocation of value beyond the DNO (when the DNO customer pays for the innovation projects), participation of customers with understandable obligations to protect their interests. There might be potential for new thinking to address the ingredients for success in wider participation and broader energy system projects and this is important for a future integrated/efficient energy system in GB. This is an area that we believe the review can add value to by considering in more detail.

Question 4: Can we improve the process for deciding on which projects to approve and if so how?

We think the rigour and transparency in the current processes are broadly appropriate: e.g. two stage application and evaluation (for NIC) with questions and feedback at various stages, independent panel input, independent consultant input, etc. and all against clearly set out application processes/templates/guidelines and award criteria. The proportionate application and evaluation processes for the smaller NIA projects also seem appropriate.

At the risk of repetition, we point out the need for clearer commitment to roll-out the outcomes of successfully completed projects (as noted in Q1).

Question 5: How can we improve participation in the NIC?

We do note a recent narrowing of project application volume, ideas and participants in recent electricity NIC projects. From our experiences and discussions with other stakeholders, the electricity network licensees seem to have become more apprehensive about (or at least the interpretation around) issues such as partner selection, novelty (e.g. with 6 years of LCNF and NIC there might be notions that many of the big ideas have been tackled), multiple licensee collaboration, and Intellectual Property. Combined with the desire/need to align innovation projects with shorter-term price control delivery strategies, internal resource constraints, etc. then this might be impacting on explorations with possible contributors to prospective projects.

Open discussion on these topics and the opportunity/barrier they present, shared learning workshops on doing innovation (beyond the showcase of dissemination/closedown events and LCNI), ENA hosted workshops on learned good practice on defining, delivering and exploiting the outcomes of innovation programmes could be very useful in tackling this issue. A follow up to or periodic review of G85 might be a mechanism to explore and capture these issues. These suggestions could aid in capturing much good practice on innovation and address the challenges emerging at a deeper level. This could usefully set new common ground for the next phase of innovation programmes.

Smarter Grid Solutions example: We have submitted new ideas to a number of DNOs which we believe could benefit customers. This has been as part of open idea sharing processes set up by DNOs and

that is welcomed. However, on more than one occasion we have been dissuaded from participation as a project partner by a DNO because of a potential perception that Ofgem may have if we were to be included as a project partner in a bid.

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.

We set out above the extent of our engagement in DNO innovation programmes from IFI/RPZ through to present day NIC/NIA. We have actively contributed to and experienced many approaches to managing innovation through the project/programme lifecycle. We set out our experiences in summary form against three key phases of innovation, highlighting some of the key ingredients to successful programmes:

- **Preparation/Planning**: We believe that more attention could be paid to sources of ideas and techniques for idea generation, partner (not just supplier) selection and contribution, bid preparation with business case, roll-out plans and real company buy-in, and clear roles for different types of stakeholders and contributors to projects. One key issue noted is about partner/contributor selection with unusual interpretations around transparency, openness and fairness (all fully supported and necessary) as introduced more firmly into the project governance documentation by Ofgem for good reasons. Our discussions with various potential project partners was they started to withhold good ideas for projects as it was not clear what role (if any) they may eventually have in a project given the interpretation and practice around fairness/openness. Their reservations were that they end up competing to run with their own idea (shared at project formation stage) in the project or potentially excluded on the basis that although their ideas were valuable they have had their turn.
- **Execution**: We experienced a variety of project management and governance styles in projects including different approaches to project management, different understanding of innovation projects and their distinct characteristics, different levels of executive level buy-in (and the persistence of that through projects), different levels of wider company participation, different levels of preparation for exploitation and roll-out, different philosophies on learning capture and dissemination, etc. Generally we have experienced good and well run projects but we believe that a review of innovation project execution could usefully share and establish good practice in this area.
- **Exploitation**: We believe this is a lesser prioritised area of innovation projects with more effort committed to preparation, planning and execution/delivery. Serious planning for exploitation at the planning and execution stages is essential and evidence of this is limited. There are multiple roll-out challenges beyond project scope including organisational ownership for roll-out, wider impact assessment of roll-out, additional investment required to advance along the solution maturity timeline, partners/suppliers and creating a market for suppliers to provide into an efficient roll-out, etc. We note that planning for exploitation at the application/inception stage is standard in academic research projects ('pathways to impact' and perhaps this is an additional strand of useful transfer of good practice from research to innovation that could be adopted.

Smarter Grid Solutions example: While Smarter Grid Solutions has had some success through the innovation lifecycle and the Ofgem governed innovation programmes, the real exploitation of the potential of the solution we developed and trialled with our DNO partners (ANM) has not yet been fully adopted and rolled-out. We welcome the moves to create a normal/BAU market for flexible managed connections delivered by DNOs for their customers and note that such a 'normal market' will bring clarity of value, competition, efficiency, continued innovation (funded outside of LCNF, NIC or NIA). However, we believe that there was not enough focus on this issue of creating a standard playing field for innovative ideas and innovation programme outcomes (either by ourselves, our DNO partners or other stakeholders). We believe that completing the journey to business as usual from innovation is a significant issue for the sector to fully deliver the return on the investment in innovation programmes and deliver value to customers of the networks. There are many obvious but subtle aspects to the creation of BAU or 'normal markets' and this is worthy of much more attention generally but also specifically in the context of the NIC and NIA programmes and the regulation of the network licensees more widely.

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

We are generally very positive about the role and importance that innovation in networks now has. We note that the culture and discourse around innovation is very positive across GB network stakeholders but that real delivery of the value to GB customers is still required. Our points on exploitation, roll-out and creation of BAU/normal markets and arrangements for novel solutions are significant, complex but necessary for delivery of value to the GB customer.

Question 8: To what extent do you consider that the LCN Fund has succeeded?

There are many areas where good progress has been made on trialling and maturing innovative solutions and low carbon technology integration into the GB system (e.g. electric vehicles, renewables, energy storage, electric heating, customer participation, smart meters, new control systems, etc.). We welcome the emphasis on innovation, building this into regulation (RIIO), and the levels of investment; all of which we believe are broadly appropriate for this industry. However all of this is yet to fully deliver value for customers (there are commitments under the RIIO settlements) and it might be argued that that is the only important metric. Emphasis on all the various aspects and challenges of exploitation and roll-out of innovation is now the important final lap in delivering that value to customers. Consideration of regulatory incentives for exploitation and stronger innovation roll-out reporting obligations are required to give further support to the delivery of customer value from innovation projects.

Question 9: To what extent do we need to continue incentivising innovation by DNOs?

We believe that there is a need to sustain allowances, programmes and incentives for innovation by DNOs. Under price controls (even an advanced/progressive price control such as RIIO), DNOs will optimise their structure to economise, standardise, simplify, risk reduce to drive efficiency and gain commercially – this is generally very good news for customers that they do this. However, innovation could be viewed as a requirement to break out of that in carefully constructed structure to explore beyond the current price control, challenge procurement norms, create new solution options, take risks, invest more speculatively, etc. With complex governance structures in the electricity sector at large, the specialist domain of natural monopolies and their regulation, as well as numerous new challenges and opportunities for network stakeholders and new business models afoot (e.g. the DSO

and the whole system), we believe that regulatory support and oversight of innovation is still required to drive the change required.

Question 10: Are there any other issues we need to consider as part of the LCN Fund benefits review?

None.