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21<sup>st</sup> Feb 2014

RE: NIAUR Draft Corporate Strategy 2014-19 and draft Forward Work Programme 2014-15

Dear Ms. Ardines,

Smart Grid Ireland welcomes the opportunity respond to the Utility Regulator Northern Ireland's Draft corporate strategy 2014-19 and Forward Work Plan 2014-15. Please find our response attached.

As a collaborative network involving public and private companies and bodies on the island of Ireland, SGI has a broad interest in the future Regulatory Authority strategy in Northern Ireland as it indicates the roadmap for regulation over the coming years to 2019.

The members of Smart Grid Ireland include some of the largest international companies engaged in the electricity and ICT sectors and bring a wealth of knowledge and experience to bear on the sustainable development of energy systems.

We trust that you will find our response to be informative and constructive and would be very happy to engage with the Utility Regulator in any further discussions on the strategy. We are also available to offer whatever advice you may find useful in relation to the execution of your forward work plan.

Yours sincerely,

Tony Carroll  
Chief Executive

Paddy Turnbull  
Chairman



# NIAUR Draft Corporate Strategy 2014-19 and draft Forward Work Programme 2014-15

## Response from Smart Grid Ireland

### Introduction

Smart Grid Ireland welcomes the opportunity to respond to the Utility Regulator Northern Ireland's Draft corporate strategy 2014-19 and Forward Work Plan 2014-15.

As a collaborative network involving public and private companies and bodies on the island of Ireland, SGI has a broad interest in the future Regulatory Authority strategy in Northern Ireland as it indicates the roadmap for regulation over the coming years to 2019. SGI supports broad alignment between the strategies of the two regulatory authorities on the island of Ireland so that the electricity networks can be managed and developed in a co-ordinated and efficient manner for the benefit of all customers on the island.

We are also interested in the continued integration of smart technology devices and systems into mainstream electricity network development. We believe that the Regulatory Authorities have a pivotal role in creating the correct conditions to facilitate the regulated utilities investing in the innovative devices and systems that will, over time, become cornerstones of the future electricity systems in both Northern Ireland and the Republic of Ireland, to bring long term benefits to all consumers.

Smart Grid Ireland, in its advocacy of smart grid technology and systems, supports the transition towards a low carbon energy sector for Ireland, North and South, and believes that this transition should take place in the most cost-effective way possible. As such, SGI shares the government's and regulator's view that modern energy infrastructure is crucial for the creation of competitive energy markets and to enable Northern Ireland to meet its broader climate and energy goals. We also share the view that energy infrastructure is a precondition for a functioning internal market and that incentivised investment to develop this infrastructure will strengthen the internal energy market and achieve objectives of common interest. We strongly believe that this will contribute to:

- Further energy decarbonisation;
- Facilitation of the connection of renewables;
- the creation of competitive energy markets;
- Increased security of supply; and
- Create the conditions to establish NI as a "living lab" for smart grids, thus creating economic opportunity and employment, and helping to reduce the incidences of fuel poverty

In answer to the specific questions in the consultation document:

**1. Do you think we have chosen the right strategy objectives?**

- a. We would begin by reflecting on the Mission: “Value and Sustainability in Energy and Water”. This is an excellent mission statement but we might observe that sustainability encompasses energy security, low carbon generation and infrastructure resilience but also needs to have regard to an uncertain future in regard to the electricity supply paradigm. In fact the only certain thing is that this paradigm will be different from today and will incorporate ever greater levels of consumer participation in the energy markets, facilitated by big data and smart grids. We would also remark that sustainability could usefully be included in the list of values of the Authority itself.
- b. The objectives you have chosen seem largely correct. We would offer the following comments on the specific objectives:
  - i. Encourage Efficient and Effective Monopolies
    1. To deliver the outputs that are envisaged under the NI Programme for Government and DETI policies, it is vital that the regulated utilities are facilitated by the regulatory strategy to carry out the required investment. This specifically requires that there is sufficient reward for investment. The utilities must be allowed an appropriate and fair return to encourage the deployment of innovative technologies to support the shared policy objectives. The regulator must also respect and leverage the expertise of the utilities to develop the electricity networks in a professional manner. In this regard, a performance-based model, such as OFGEM’s RIIO framework should be considered.
  - ii. Promote Efficient and Competitive Markets
    1. To enable optimum market conditions the utility companies (e.g. NIE and SONI) must collaborate and invest together to ensure the infrastructure is resilient enough to deliver enduring security of supply. The promotion of market driven provision of system ancillary services must be backed up with appropriate investment in a smart network that derives as much value as possible from the existing electricity infrastructure and optimises investment in traditional and new technologies. Market mechanisms to deliver services can only fully deliver value when the appropriate infrastructure is in place. Strong emphasis must be placed at a regulatory level on the linkage between network development and effective market operation.

- iii. Protect the Long term Interests of Business and Domestic Consumers
1. Key indicators in this area are cost competitiveness, security of supply, and energy decarbonisation. The network companies must be key players in delivering these objectives and must be incentivised appropriately to take the deployment and development risks to deliver these objectives. For example both Italy and Portugal have allowed a premium level of return in such investments by the utilities.
  2. Innovative strategies and investments are increasingly effective in achieving this objective. The development of ICT has enabled customers to participate in commerce, politics and almost every domain in a revolutionarily effective manner and now this is possible in the electricity sector. Be it through more effective load management in the home or at work, or electric vehicles, small generation or storage installations, their behaviour can be profitable for customers and allow for more efficient or sustainable electricity infrastructure development. (see Appendix section 3)
  3. The technologies are already available for this to be realised and are being deployed: e.g.
    - a. SCADA
    - b. Self-healing power systems;
    - c. Wide-area monitoring including Phasor measurement units;
    - d. Active distribution networks management including geospatial and mobile systems and integrated outage management
    - e. New network technologies that facilitate increased power transfers and losses reduction (e.g. CVR, superconductivity, high operating temperatures,..);
    - f. Energy storage
    - g. Wide deployment of communications to enable grid automation, on-line services, active operation, demand response and DSM;
    - h. Power electronic technologies for quality of supply;
    - i. Smart metering

Delivering this active electricity system requires sufficient regulatory support, providing a clear, reliable and sustainable strategy to resource these investments, We would welcome the regulatory authorities, in their

role as advocate for all electricity customers, to adopt such a stance and assess innovative investment strategies based on the long term return they offer to customers. This is not a question of preferring technology development over customer interests or vice versa. It is a matter of seeing how the customer interests and more modern, smart networks are in fact aligned.

4. Internationally this approach is gaining traction. This international stance is in recognition of the need for innovation, efficiency and promoting the facilities and benefits which all customers should be able to achieve.
  - a. Ofgem (in Great Britain) and AEEG (in Italy) have put in place tailored incentive mechanisms to encourage network companies to pursue innovation/demonstration projects. In Italy, eight pilot projects have been selected by the regulator. To these projects 2 % extra WACC is approved for 12 years. In Finland, the regulatory model applicable from 2012 to 2015 includes an innovation incentive allowing a proportion of R&D costs to be passed through to customers. Similarly, in Norway, regulation allows for passing through of RD&D costs to a certain level since 2013.
  - b. This has already attracted increased interest for cooperation in R&D and Pilot projects. In the UK the LCNF fund is stimulating innovation and new investments, creating new business cases for parties across the electricity sector and providing opportunities for customers to participate and become engaged.
  - c. The EU has strongly mandated this transition, with an emphasis on smart metering and smart grids in legislation including the Third Energy Package, the Energy Efficiency Directive, the European Infrastructure Package and Connecting Europe Facility. (see appendix for more examples)
  - d. The awarding of the Northern Ireland / ROI proposal (North Atlantic Green Zone) as a Project of Common Interest is based on rigorous assessment and cost benefit, establishing that this innovative means of investing in the distribution system offers significant societal benefits. This project and similar work is

based on the premise that carbon abatement, renewables, and energy efficiency targets can be met in a cost effective manner through innovation, monitoring and real time control in the face of the fundamental fact of asset depreciation and inevitable replacement.

**2. Have we identified the most important strategy outcomes, are there others that we should have included?**

- a. The most important policy context for the strategy is stated in draft strategy as:

**“The NI Executive’s Programme for Government (PfG) 2011-15 sets an overall context for all public service activity. It identifies a series of priorities, of which growing the economy is the most important.”**

All of the subsequent material needs to be seen in this context. Although NIAUREG is not an economic development agency, yet the strategy, activities, and outcomes of the regulatory activity should contribute to the economic development and hence growth of employment in Northern Ireland. This approach also helps tackle the issue of fuel poverty by increasing levels of household incomes over time.

- b. The outcomes defined in the document are correct but there are a number of other important outcomes which might be included and interpretation of some of the outcomes may be called for.
- c. From the point of view of electricity, we would like to see the following outcomes included:
- i. A reliable, secure, resilient and adaptable network which meets the emerging needs of the new market paradigm, whereby players at all levels of the value chain participate in the market. SGI has in this response highlighted the necessary actions needed to achieve this outcome
  - ii. Having accepted that economic growth is the prime policy driver, then one would expect a specific outcome which looked forward to modern, progressive markets and infrastructures which yield a strategic advantage to Northern Ireland in its search for economic success.
  - iii. Again, taking the pre-eminence of economic growth, an outcome by which “market compares favourably with markets elsewhere” would seem insufficient. We should rather be seen to be leading developments in market innovation.
  - iv. As innovation in all areas is the lifeblood of economic growth and success we would expect to see the regulated utilities incentivised to undertake innovative and progressive projects which contribute to value and sustainability Specifically, this should include the equivalent of the low carbon network fund operated by OFGEM.

Such a fund would be of the order of £8m on the basis of a pro-rata allowance for NI.

**3. What are your views on our key performance indicators, do you have any suggestions on indicators that should have been included?**

- a. We would propose the alteration / addition of KPIs as follows:
  - i. Objective 1, KPI no 1: “Network utilities will be able to demonstrate their excellence in asset management, which is benchmarked against their peers” should be changed to “Network utilities will be able to demonstrate their excellence in asset management, and in smart grid implementation, which are benchmarked against their peers
  - ii. Objective 1, KPI no 3 : “Our regulatory tools have helped ensure regulated utilities drive further effective innovation”, should be replaced by: “Regulatory incentives for innovation by regulated utilities should benchmark favourably to the upper quartile of appropriate comparators” [note: this is to ensure a positive and proactive attitude by the regulator towards innovation]
  - iii. Objective 2, New KPI: “We will have trialled a number of innovative market arrangements based on maximum customer participation including at least one on real-time pricing.”
  - iv. Objective 3, New KPI: “At least n smart grid projects will be completed, including the North Atlantic Green Zone”.
  - v. Objective 3, New KPI: “smart metering will be rolled out to all domestic and small business customers”

**4. Do you have other comments or material suggestions that you would like to make about the document?**

- a. The strategy should mirror what is happening in the rest of the United Kingdom. The Smart Grid Forum was created by the Department of Energy and Climate Change (DECC) and Ofgem to support the UK’s transition to a secure, safe, low carbon, affordable energy system. The Forum is made up of a mix of representatives from the network companies, consumer groups, energy suppliers and wider industry. It considers the full range of technical, commercial and regulatory issues associated with developing smart grids in order to manage increasing distributed generation; the electrification of heating and transport; and the rollout of smart meters; and introduction of demand side management.
- b. There is a worldwide consensus that failure to invest in smart grids now will lead to even higher costs in the long term. (Appendix, Section 1) This should be recognised in the strategy and in the work plan (see suggestion in response to question 5). The European Commission, on Jan 27<sup>th</sup> 2014, issued a communication on “Boosting European Industrial Competitiveness”. Among the priorities identified by the Commission is “Smart Grids and Digital Infrastructures”. It draws attention to the fact that it has included two smart grid projects as PCIs in the CEF; one of those projects (NAGZ) is in Northern

Ireland (and ROI). These and other international references are provided below. (see appendix)

**In respect of the draft FWP (2014) we would welcome you views on:**

**5. Have we identified the right projects or have failed to include certain projects;**

- a. The projects you have identified are wide ranging seem beneficial. We would comment on a number of these and perhaps make additional suggestions
- b. We are very pleased to see a project to develop an approach for the deployment of smart metering in NI. We would be pleased to support this and offer any assistance we can in relation to consultation or other inputs. Our members comprise many multinational companies who have extensive experience in this area. We have already begun the task of setting up a working group of our members to consider issues related to smart metering such as:
  - i. functionality,
  - ii. Communications infrastructure
  - iii. Privacy and cyber security
  - iv. interoperability
  - v. This group will follow the very successful model employed by the BEAMA which has a working group on metering to assist DECC in the development of the GB smart metering scenario.
- c. We note your project to “Complete research on NI electricity pricing and comparative with other jurisdictions”. This should be complemented by research seeking to understand the growing role of the DSO in facilitating energy markets. In this regard, it is interesting to note that the Council of European Regulators (CEER) has the following in its priority programme for 2014
  - i. CEER wants to pursue one ‘horizon’ issue which we believe will have significant impact on the regulation of the energy sector in the years to come: the future role of Distribution System Operators (DSOs). We recognise that the introduction of new technologies into distribution networks, the increase in the connection of generation capacity at lower voltage levels, and the growing role of the demand side will significantly affect the role of DSOs. It will also facilitate the development of new services for consumers which could be provided by new actors such as aggregators. CEER considers that it would be timely to have a broad debate on the implications of these developments on the future role of DSOs and on the related regulatory framework.
- d. As previously noted, economic development is the key policy driver in NI. In this regard it is important to support initiatives that position NI to the



forefront of technology development. One of the most important smart grid projects ever to come Northern Ireland is the North Atlantic Green Zone, which has been accorded a status of PCI (project of common interest) under the Connecting Europe Facility. Not only will this attract significant EU funding, but it promises to place Ireland (North and South) firmly on the map as an exemplar in smart grid technology. This will only happen if it receives the requisite regulatory and political support from both Dublin and Belfast.

**6. Do you have any other general comments on the draft FWP.**

- a. Ensuring regulatory certainty is important for regulated businesses when attempting to secure investment. It is vital that this certainty is retained, and that regulatory risk is reduced as much as possible. It is however, vital to the efficient development of a changing network infrastructure that the Regulatory Authorities create the correct environment to encourage deployment of innovative devices and systems to meet the objectives outlined in the UR strategy. The deployment of these solutions should be explicitly supported in strategy and objectives by UR to encourage the investment climate to allow the regulated utilities to deliver the required network infrastructure of the future, beginning over the next five years.

## Appendix

### International references on importance on investment in the electricity infrastructure, particularly in relation to smart grids:

1. Rough estimates, place the investment need in "intelligent" network infrastructure, at both transmission and distribution level, at around EUR 40 billion up to 2020. Failure to invest will lead to insufficient integration of large-scale renewables capacities and deployment of electric vehicles as well as lack of regional cross-border demand-supply optimisation. As a result, peak demand in electricity could be up to 5% higher by 2020 and up to 8% by 2030 respectively, with corresponding needs for investment in expensive peak load and back-up generation assets.

*European Task Force for the implementation of smart grids in the European Internal market 2012*

[http://ec.europa.eu/energy/gas\\_electricity/smartgrids/taskforce\\_en.htm](http://ec.europa.eu/energy/gas_electricity/smartgrids/taskforce_en.htm)

2. There is broad consensus that substantial investments are needed to modernize the electricity system through new technology and other improvements. Between 2010 and 2030, estimated costs for modernization range from \$340 billion to \$480 billion (EPRI 2011); however, benefits are estimated at \$1.3 trillion to \$2 trillion over 20 years—roughly three to five times the investment.

*Workshop on technology, measurement and standards challenges for the smart grid (NIST March 2013)*

3. A Smart Grid employs innovative products and services together with intelligent monitoring, control, communication, and self-healing technologies in order to:
  1. - Better facilitate the connection and operation of generators of all sizes and technologies.
  2. - **Allow consumers to play a part in optimising the operation of the system.**
  3. - **Provide consumers with greater information and options for how they use their supply.**
  4. - Significantly reduce the environmental impact of the whole electricity supply system.
  5. - Maintain or even improve the existing high levels of system reliability, quality and security of supply.
  6. - **Maintain and improve the existing services efficiently.**
  7. - **Foster market integration towards European integrated market.**

*Definition, expected services, functionalities and benefits of smart grids: accompanying documents to communication from the*

4. On 22 April, the European Commission's Joint Research Centre (JRC) published an update of its 2011 report 'Smart Grid projects in Europe: lessons learned and current developments', the most comprehensive inventory of smart grid and smart metering initiatives across the EU, Croatia, Switzerland and Norway. The new release includes 281 smart grid projects and around 90 smart metering pilots and roll-outs, accounting for a total investment of € 1.8 billion. The UK, Germany, France and Italy are the leading investors in demonstration projects, while Denmark is most actively involved in R&D. In this context, public sector support has played an important role, in particular through the smart grid programme of France's Agence de l'Environnement et de la Maîtrise de l'Energie and the regulatory incentives for smart grid projects set up by the Italian regulatory authority AEEG.

[http://ec.europa.eu/dgs/jrc/index.cfm?id=1410&obj\\_id=16650&dt\\_code=NWS&lang=en&ori=HLN](http://ec.europa.eu/dgs/jrc/index.cfm?id=1410&obj_id=16650&dt_code=NWS&lang=en&ori=HLN)

5. As part of the electricity distribution price control arrangements that run from 1 April 2010 to 31 March 2015, Ofgem established the Low Carbon Networks (LCN) Fund. The LCN Fund allows up to £500m support to projects sponsored by the distribution network operators (DNOs) to try out new technology, operating and commercial arrangements. The objective of the projects is to help all DNOs understand what they need to do to provide security of supply at value for money as Great Britain (GB) moves to a low carbon economy

<http://www.ofgem.gov.uk/Networks/ElecDist/lcnf/Pages/lcnf.aspx>

6. Rachel Fletcher, Ofgem's Acting Senior Partner for Smarter Grids, Governance and Distribution, said: "Britain's energy grids need to undergo a revolution in how they are run so they can connect more renewable generators and a range of low carbon technologies such as ground source heat pumps. There is a significant opportunity for companies to contain the cost of this transition by making better use of existing capacity and exploring the scope to use demand side response.

*"Lessons learnt from the projects will be shared with all network companies and other interested parties."*

*OFGEM press release 27<sup>th</sup> Nov 2011*

7. The CER has allowed the DSO an €18.2m fund to carry out research and development and sustainability activities. This is the first time the CER has made such a provision. The provision will allow the DSO to explore technological advances in areas such as smart grids, generation integration and adaptation of new network devices to support the integration of renewable generation into the network and to improve quality of supply.

*CER price determination for ESB Networks 2011 to 2015*

<http://www.cer.ie/GetAttachment.aspx?id=64d62ee8-2760-4356-8c9a-e494cf8209ab>

## 8. The Smart Grid Opportunity in Scotland

Scotland has enormous green energy potential – which has allowed us to set an ambitious target for the equivalent of 100% of Scotland's electricity needs to come from renewables by 2020. What's more, the 2020 global market for Smart Grid products and systems has been estimated at £24 billion (the European market alone is estimated at £12 billion).

Smart Grids play a key part in realising the low-carbon transition. They allowing the energy network to be balanced more easily and at affordable cost, and bring considerable other benefits to consumers through improved quality of power supply, more accurate billing and better energy consumption management.

According to the Smart Grid Working Group (Scottish Power, Scottish & Southern Energy, GE Energy, University of Strathclyde, Cisco and Scottish Enterprise) innovation will be vital to Scottish companies looking to make the most of the industry potential.

*Smart Grid - a guide to opportunities and funding, Scottish Enterprise*

<http://www.scottish-enterprise.com/knowledge-hub/articles/guide/smart-grid-funding-introduction>

## 9. Smart Grid funding Calls in Scotland

Current call

The Winter 2013/2014 Smart Grid funding call is primarily focused on research and development projects that address issues regarding network automation and optimisation including:

- Protection and control
- Active management of power flows
- Voltage control
- Monitoring and diagnostics
- Network Operation Optimisation

Future calls

We expect to launch two further funding calls in 2014.

These will focus on

- Physical and Digital Network Security, and
- Grid Integration of Intermittent Renewables.

<http://www.scottish-enterprise.com/services/develop-new-products-and-services/smart-grid-funding-call/current-call>

