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SMART GRID IRELAND RESPONSE TO UTILITY REGULATORS PROPOSED APPROACH TO NIE NETWORKS RP7 PRICE CONTROL

Introduction

Smart Grid Ireland (SGI) welcomes the opportunity to respond to the Utility Regulators consultation on the NIE Networks RP7 Price Control. Smart Grid Ireland (SGI) supports the Regulators vision to make a difference for consumers. The effectiveness and efficiency of NIE Networks and the way it interacts with consumers is important to us all. The implementation of a new Energy Strategy, with the objective of delivering net zero, will result in changes in patterns of consumption and consumer expectations. It will require new ways of working and technologies to deliver in a changing and uncertain environment.

We also wholeheartedly support the commitment of the Regulator to best practice. The immediate challenge of managing to find the balance between representing the interests of the consumer in the short term and the need to modernise the grid and enable Net Zero decarbonization of the grid in line with governments legislative requirements and secure a long-term sustainable future for the electricity grid network applying innovation and a best-in-class approach to regulation

The electricity sector now occupies centre stage in the efforts to reduce greenhouse-gas (GHG) emissions. Renewable energy sources such as wind and solar power are providing an increasing share of power generation while at the same time presenting certain challenges to widespread use, the grid being one of the bottlenecks. In particular, the inherent variability of wind and solar power creates a need to balance supply and demand, for example, by using fossil fuel power to fill gaps. The search is on for a solution that will further reduce the need for fossil fuels, increase the impact of emission reduction efforts, and improve risk management for electricity purchasers.

While RP7 requires a level of balance between investment decisions and meeting expectations on the price consumers pay for their electricity. It is our opinion that unless investment in grid modernization is speeded up and regulatory controls upgraded to meet the need, it will be nigh impossible to meet legislative milestones in decarbonization of the grid.

SGI supports the principle of affordable energy and we look to the Utility Regulator for leadership in the development of a modernised smart grid for the benefit of Northern Ireland. The Smart Grid Ireland response will provide a context on the reasons for a smart grid. It will also highlight that the “value to customers” is at the forefront of our consideration.

Our response also recognizes the evolution of the electricity market structure and the need to operate within a regulatory framework to ensure the provision of a secure, sustainable competitive, clean and efficient electrical energy supply for Northern Ireland’s current and emerging consumer, economic and social needs.

Context

Smart Grid Ireland's response to the importance of the RP7 Price Control is set in the context of the 2030 targets outlined in the Energy Strategy and Climate Action Bill, including:

- 80% of electricity consumption from renewable sources,
 - 56% reduction in energy related emissions (power, heat and transport) against 1990 baseline,
 - doubling the size of the low carbon and renewable energy economy to that of a turnover of more than £2 billion, and also the longer-term target of a zero carbon energy system by 2050.
1. The fact that all stakeholders and participants in the industry (renewable developers, technology providers, large industry, residential customers, providers of finance, etc.) have a huge dependence on the electricity network and this Price Control will send an important signal to the wider market as to whether NI is serious about its ambitions in relation to the energy transition and open for business and looking to attract investment.
 2. The need for this price control to deliver a reliable energy system for customers, while also delivering the investment to enable increased electrification to support the transformation to a low carbon energy system, economy and society, consistent with the ambition in the NI Executive's 10X economic strategy and Green Growth Strategy.
 3. The need for a regulatory approach that is anticipatory rather than reactive. The approach being taken by Ofgem in GB provides a useful benchmark model.
 4. The need for a Price Control that can be agile and adaptable to changing circumstances, recognising that there will be uncertainty over the period, but equally providing sufficient clarity on direction and scale of investment to give confidence to the market and enable delivery be planned and executed efficiently.
 5. We cannot over emphasise the importance of significant investment in digitalisation, and associated ICT and data to enable a truly smart network that can support the transition to a low carbon system and enable market participants engage effectively and access a smart system and appropriate data.
 6. The importance of innovation and for the Price Control to make provision for increased investment in innovation that will be needed to provide the flexible, integrated and resilient energy system envisaged in the Energy Strategy. The "fast follower" approach previously adopted in NI is no longer appropriate. NI should be looking to become leaders in the energy transition, leveraging our unique characteristics. Innovation needs to be collaborative, including engaging with other utilities and third parties and taking a whole of system perspective.

7. We challenge why key issues that need to be addressed such as Smart Metering and Connection Charge Reform are not being reflected in the Approach. These are critical issues that need to be progressed urgently, and taking them on a piece meal basis, separate to the Price Control, is likely to lead to sub-optimal decisions.
8. The timescale for the process needs to find the right balance between the need to correctly reflect the complexity and uncertainty arising from the scale of change needed in this price control, whilst also enabling progress to be made quickly and provide early momentum to delivery of the energy strategy.
9. The demand for low or non-carbon distributed electricity will increase significantly longer term with the growth of electric & hybrid transportation, the development of population housing stock, the diversity of energy supply and new industrial drivers such as Data Centre's and factory automation will change the game in how electrical energy is sold and delivered.
10. We recognize it is not the role of a regulator to select specific technology solutions to support the integration of variable renewable energy needs, there is nevertheless a need to consider how the regulatory regime should best support how to incentivise the investment in appropriate technologies that are relevant to the future proofing of the electricity grid network in NI.

CHALLENGES IN EXISTING ELECTRICITY GRIDS

Northern Ireland grid faces at least four main challenges:

- **Renewable Electricity demand is rising** faster than any other energy source, and intensifying as a result of Net Zero carbon / climate change legislation. Networks need significant reinforcement and resilience to increase existing capacity, and extended to reach a larger customer base;
- **Existing grid infrastructure is aging**, because of very long return-on-investment cycles. The financial impact of such grid issues is growing, as the economy is becoming ever-more reliant on electricity; (Ex: Robotics, Digitalisation, EV's etc)
- **Wind and solar capacity increasing**, the penetration of Variable Renewable Energy (VRE) in some areas is reaching levels that are creating difficulties in the balancing of supply and demand at a reasonable cost;
- **Distributed Generation (DG)** annual capacity addition is set to double in the next 10 years. Overall, the goal of a power grid is to co-optimize, for a given set of generation capacity and demand patterns:

Because the characteristics of renewable energy sources are so radically different, and because energy is so fundamental to every function in life, the transition will affect the functioning of all industries and other walks of life. There will be a surge in electrification. As more renewable power becomes available, whatever functions can be performed with electricity will be switched.

Maintaining a strong pace of emissions reductions post-2030 requires a relentless focus on energy and material efficiency, electrification, and a strong role for low-carbon liquids and gases. N.I Smart Grid needs a modernised electricity network that monitors, protects and optimises the operation of its interconnected elements.

The NI Electricity Utility Regulator has an opportunity through RP7 to invest in Smart Grid Technologies, grid modernisation while promoting social benefit through actively driving technology solutions that accelerates the cultural and societal changes needed to achieve a digitalized, decentralized and decarbonised electricity network and improve Northern Ireland's international competitiveness

RP7 – Pioneering Energy Solutions

The ambition of the RP7 price control should be transformational in the outcomes it delivers for citizens, focussing on investment to meet customer and societal needs while building a robust network able to support increased electrification. This will facilitate the decarbonisation of Northern Ireland as we move towards a net zero carbon economy, as well as generating significant economic benefits for Northern Ireland in support of the NI Executive's '10X Economy' vision and Green Growth Strategy.

Achieving this ambition will require regulatory arrangements that take a longer-term view of investment requirements, not just to 2030, but also focused on the longer-term goals for 2050. Price control that takes a short-term view presents a real risk that the electricity network cannot keep pace with the societal uptake of low carbon technologies that will be key to delivering against the targets that government has legislated.

We believe that RP7 cannot be based on a "Business as Usual" approach but aligned to the needs of the targets in the Climate Change Act.

RP7 – INNOVATION

The Energy Strategy states that '*Innovation will be at the heart of an economy based on low carbon technologies.*' We agree with this statement and urge the regulator to provide the necessary incentives to underpin the benefits of innovation through adequate funding in RP7 while taking account of work on innovation commissioned by other network operators.'

We consider the following technology zones opportunity areas for investment and innovation

- Grid Modernization
- Smart Metering
- Electric Vehicles
- Energy Storage Systems
- Renewable Energy
- Microgrids
- Smart Cities
- Standards and Cyber Security
- Disruptive Technologies

RP7 - Network Resilience

This is one of the most critical investment areas within the RP7 determination. The ability of a network to defend against and maintain the required level of service in the presence of the challenges such as the age profile of the network and the condition of the assets, some of which will need replacement in order to maintain reliability of supply. Also in the context of the increased number of renewable sources coming on stream. A sustained failure in the electricity system would have dramatic consequences. It would result in a catastrophic failure of communications and of many services on which we are now heavily dependent. It would have an impact on the country's economy and on public safety to a much greater extent than even a decade ago.

RP7 – Currently outside the Price Control

The UR proposes dealing with several key issues separately in regard to the RP7 price control mechanism including:

- Smart meters
- Connection charging policy
- Digitalisation & Data

Connection charges policy

There have been calls for facilitating enduring legislation / licence changes to ensure connections process in NI enables achieving 2030 (and future) targets. This is a major impediment to Electric vehicle charging infrastructure currently. SGI would advocate strongly for a Connections Charging Review in Northern Ireland aligned to connections charging to the Republic of Ireland to ensure there is a level playing field and to encourage investment in the wider economy.

Digitalisation & Data

This is a welcome inclusion in the proposed approach between the regulator and NIE. However, any proposed Digitalisation business plan should incorporate engagement with NI energy communities and societal interfaces.

ECONOMICS AND ENVIRONMENTAL BENEFITS

Although impacts are difficult to quantify in a consultation response document such as this, a smart-grid roll-out should provide net economic and environmental benefits including:

Social Acceptance & Cyber Security

Social acceptance of smart grids is a prerequisite for active consumer participation in grid management. Clarity in relation to data privacy, sharing and protection will be essential in securing consumer acceptance and grid security. Cybersecurity must be developed to protect technology, processes and people from deliberate attacks and accidents.

Private Investments

The smart-grid market is sizeable:

During the next five years, a forecast annual investment growth will be fuelled by the roll-out of smart meters. Solid funding from venture capital and private equity highlights the emergence of smart grids as an essential area of clean technology. Smart-grid initiatives continue to expand globally, with increasing momentum all around the world

RD&D Landscape

The number of smart-grid patents filed increased by 17% a year between 2000 and 2010. Most smart-grid technologies are in the demonstration and deployment stages, further highlighting the dynamism of this growing sector.

Conclusion

Having outlined Smart Grid Ireland's response to the Regulators RP7 Price Control Proposal, our comments have been informed by what we have reviewed in the DfE energy policy document, emerging trends in other countries and the government legislative timetable including Climate action plans. All of which will decide on the balance of investment and value to the customer in the longer term.

Smart Grid Ireland is a not for profit, all-island advocacy network, whose mission is to facilitate the delivery of a secure, affordable and sustainable energy infrastructure, positioning Ireland at the forefront of global smart grid development, to create long-term economic wealth and employment for the people of Ireland

Note: Any queries to this submission should be addressed to bob.barbour@smartgridireland.org. or by contacting the SGI secretariat Sasha.allen@cforc.org / +44 7527 366808