

UREGNI Corporate Strategy Consultation

Ulster University Response

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Introduction

Energy systems around the world are going through a period of fundamental change due to the emergence of new energy economics, consumer-centric business models and changing social preferences. Rather than the historic, top-down approach that regarded citizens as passive recipients of the outcomes of policy and regulatory decisions, much of the momentum for change now comes from digitally-enabled consumer resources (both business and domestic) and is happening at the local distribution network level.

Small-scale, distributed technologies such as electric vehicles (EVs), load response and energy storage (collectively known as distributed energy resources or DERs), connected to the low-voltage distribution network, and often co-located with the loads that they serve, can now be consumer-owned. They can be used individually or in aggregate and co-ordinated by digital communications to monetise value for individual consumers, system and network operators, wholesale and ancillary services markets, and local community energy schemes. The potential for consumer-owned technologies to create value has created the need for a regulatory and market environment which is smarter, flexible and more integrated, and in which such consumer-side system value can be rewarded fairly.

Leadership Role for the Utility Regulator

In NI the last significant policy action was the publication of the Strategic Energy Framework (SEF) in 2010, which set the energy roadmap until 2020. Following the collapse of the Assembly, there has been no advancement of energy policy for Northern Ireland, despite the rapid developments in consumer-side technologies outlined above.

Because of this political stalemate, Northern Ireland is currently lagging far behind other UK jurisdictions in meeting UK-wide objectives for the energy transition, summarised by the 4 Ds (Decentralisation, Decarbonisation, Digitisation, Democratisation). As the primary decision-making body for energy policy, the ongoing absence of a minister in the Department for the Economy (DfE) means that policy and legislation have stagnated.

While part of the Regulator's remit is to implement DfE policy, the department's relationship with NIAUR is very different from that of other arm's-length governmental bodies. Although DfE sets the policy and legislative context within which the regulator operates, the department does not set NIAUR's budget, nor does it approve its corporate or business plans. Critically, it does not have the power to direct NIAUR on the exercise of its functions. NIAUR is therefore in effect a semi-autonomous, non-ministerial department which is largely independent of DfE, and has freedom to interpret how best to meet its overriding statutory duty of protecting the interests of consumers.

The emergence of smart, clean, demand-side technologies creates new opportunities not only to improve consumer outcomes through lower bills, increased resilience and reduced exposure to fossil fuel price volatility, it also means that for the first time consumers can play an active role in the energy arena. NIAUR, as the 'Consumer's Champion' does not need political or legislative backing to promote consumer empowerment. If the Assembly were sitting the regulator's statutory remit would in any case oblige it to lead the transition towards decentralised, consumer-owned resources and flexibility; in the absence of the Assembly, that leadership role is doubly important.

Revenue model for NIEN

NIE Networks, as a regulated monopoly, has its revenue set by NIAUR through a periodic price control mechanism, currently Regulatory Period 6 (RP6), which runs from 2017 until 2024. NIAUR sets the revenue cap for the period based on the amount of revenue that would reasonably be required to recover NIEN's costs. Historically, because network operation was a capital-intensive business, the most significant revenue component has been return on capital, determined by calculating the Regulated Asset Base (RAB) for each year within the regulatory period. RAB-, or Cost of Service-based revenue, is grounded in the 1990s regulatory paradigm created to ensure safe and reliable electricity at reasonable prices from capital-intensive monopolies.

The emergence of demand-side technologies means that consumers are increasingly able to control their energy usage and even become system resources, something not contemplated in the 20th Century revenue model of a very small number of large, centrally operated generating plants. There are now new energy capabilities throughout the power sector: traditional centralized power generation and transmission can be augmented by customer-sited generation, energy management, storage and efficiency solutions.

Performance Based Regulation (PBR) enables regulators to recognize the value that an active systems approach to network operations can bring to customers by enabling these advanced technologies and integrating smart solutions into the electricity network. It provides a regulatory framework to connect outcomes and performance with financial returns. In NI PBR could be sculpted to determine utility revenue or shareholder earnings based on both UK-wide non-investment factors (like reducing greenhouse gas emissions or improving air quality), and/or bespoke, locally-defined performance metrics, (like reducing levels of fuel poverty due to dependence on oil as a heating fuel).

In GB Ofgem changed to next generation PBR through the implementation of its RIIO (Revenue = Incentives + Innovation + Outcomes) programme in 2013. It is currently carrying out a review for the new iteration, RIIO 2. It is important to note that the change from RAB to PBR was not politically-mandated but the outcome of Ofgem's own assessment of how best to meet its remit to protect consumers. The main goals of RIIO and RIIO 2 are the '*timely delivery of a sustainable energy sector at a lower cost to consumers than would be the case under the existing regimes*'. While RIIO and RIIO 2 retain strong cost control incentives, they also stress long-term performance, outputs, and outcomes, with less importance ascribed to a simple tally of investment costs. This transition is overdue in NI and as shown by Ofgem, does not require political sanction.

The existing RAB-based model for NIEN encourages an outdated focus on capex containment rather than outputs, and incentivises the company to appease the regulator rather than satisfy customers.

Future network investment should be based on outcomes which meet consumer and wider policy needs, overlaid with a system of financial rewards for achievement of specified performance goals.

Innovation

One of the key features of RIIO and RIIO2, along with other successful PBR programmes elsewhere, is the promotion of network innovation. In contrast to the historic, policy-controlled paradigm in which change was gradual and managed, energy and digital technologies now continually create innovation opportunities. This rate of innovation is only likely to increase. To capture the consumer benefits of innovation, in addition to the outputs-focussed incentive mechanisms built into the RIIO model, Ofgem also allocates funding specifically for innovation through schemes like the Low Carbon Networks Fund (LCNF) and the Network Innovation Competition (NIC).

These schemes allow network operators to compete for innovation funding; successful bids allow network companies to trial innovative solutions which can help them to meet PBR performance goals and generate revenue. The organisation and outputs of these trials are transparent, allowing other companies to adopt successful solutions.

In contrast, network innovation in NI under the existing revenue model effectively is effectively barred; NIEN cannot carry out research and innovation projects, rather it can only replicate successful GB schemes, under highly prescriptive conditions. This restricted arrangement disregards the unique characteristics of the network here, when compared to GB; for example; the fact that NI has almost 3 times the amount of lower voltage network per head of population; or that NI has much higher levels of variable renewable energy (VRE - principally wind); and that that VRE is largely network-connected.

As well as technology innovation, Ofgem has created a Regulatory Sandbox for GB which allows innovators to trial new products, services and business models in a real-world environment without some of the usual regulatory rules applying. The sandbox allows new approaches to be tested in a ring-fenced setting, without affecting the economics, operations and safety of the wider system. Critically, it allows innovators to apply for temporary relief from elements of their supply, distribution or generation licence. Sandbox trials are used as an evidence gathering process to understand the impacts and implications of new processes, and whether the regulatory and market environment needs to adapt. As with network innovation competitions, the outcomes are transparent and publicly shared.

Because of the unique characteristics of NI, the potential for technology and regulatory innovation to deliver consumer benefits is greater here than in GB, yet the opportunities for it are currently much more restricted. This imbalance should be addressed urgently.

Learning from Elsewhere

The question of how regulation adapts to the energy transition is not just being asked in NI. Regulators worldwide are facing the same challenge; how to equitably adapt regulatory regimes which were designed to protect consumers in an era of centrally-managed, dispatchable and predictable resources to achieve the same or higher levels of protection in a disrupted, decentralised energy democracy.

Lessons on how (and how not) to achieve regulatory change are available through, for example, the Regulatory Assistance Project; New York's REV strategy; the California Public Utilities Commission's DER Action Plan, Exeter University's Energy Policy Group (EPG) and of course Ofgem's RIIO 2 programme. Locally UU, as Northern Ireland's civic university, has long been engaged in research into the technological, economic and social impacts of energy within NI. Our previous work includes the Smart Meter trial carried out in Coleraine in 2013, Professor Catherine Liddell's work with DfC on fuel poverty, CST's track record of research into energy in buildings, our September 2018 conference 'Future Energy in Northern Ireland – The Role of Consumers' and the current Interreg V-funded SPIRE 2 research programme, in which the UR is engaged as a Steering Committee member. The voices of traditional power industry actors on the island of Ireland are already well represented. NIAUR should consider how to develop a forum for gathering evidence from beyond the industry incumbents.