Issue Brief

A primer on utility regulation in the United Kingdom: Origins, aims, and mechanics of the RIIO model

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Introduction

In April 2014, the New York Public Service Commission (PSC) launched a proceeding called "Reforming the Energy Vision (REV)"[1] to overhaul the state's electric industry. REV is a response to the economic, technological, and environmental pressures that presently confront the state's energy systems. In addition to the traditional expectations that electric utilities provide reliable, affordable, and universal service, state regulators now seek to improve the industry's performance across other dimensions: environment, resilience, and consumer engagement.[2]

To ensure that utilities evolve and perform in ways that further these policy priorities, the PSC has indicated that it will consider adopting performance-based regulation (PBR), under which utility profits depend on the achievement of targeted policy outcomes.[3] REV has identified a novel PBR variant employed by energy regulators in Great Britain—the RIIO (**R**evenue = **I**ncentives + **I**nnovation + **O**utputs)[4] model—as an exemplar of comprehensive output-based regulation that might secure New York State's regulatory goals. RIIO's emphasis on consumer value and integration of diverse policy objectives make it a potentially path-breaking regulatory innovation. As one of the first U.S. states to adopt incentive regulation for energy utilities and the first to enact performance incentives for service quality, New York may now be well positioned to introduce this type of integrated PBR in the U.S. context.

The U.K. pioneered incentive regulation for utilities in the 1980s, and has drawn upon its experience to develop RIIO, a more advanced version of such regulation. As early returns from RIIO's early implementation become clearer, New York and other jurisdictions can draw upon lessons that this regime offers.

This issue brief is intended to orient an American audience with the basic structures and mechanisms that govern utility regulation in the U.K. in general and RIIO in particular. While RIIO has received considerable interest from U.S. observers as a standard to which "utility 2.0" reforms should potentially aspire,[5] accessible descriptions of RIIO's mechanics have been scarce.[6] A forthcoming roundtable discussion on RIIO, convened by the Guarini Center at NYU Law, will facilitate a deeper exploration of RIIO and its suitability for New York and other U.S. jurisdictions.

Electric industry structures

From 1947 to 1990, the British electricity system was state-owned and centralized. All generation, transmission, distribution, and retail[7] operations for England, Wales, and Scotland were controlled by the British Electricity Authority (BEA), which set prices and terms of service.[8] By contrast, New York's power sector during that period consisted of diverse privately owned utilities that were regulated as natural monopolies by the PSC using cost-of-service regulation to prevent them from earning excess profits.[9]

Although nationalization of Britain's electric sector succeeded in standardizing a previously fragmented and decentralized industry, productivity increased less than had been expected.[10] As a result, British authorities turned towards privatization to reap further productivity gains and sold off the state's interests in the electric industry between 1990 and 1995.[11] Thereafter, transmission and distribution (T&D) owners gradually

began to divest ownership of generation facilities, at roughly the same time as New York began to encourage its T&D owners to do the same.[12] In both jurisdictions, this unbundling removed barriers to entry in the generation sector, with the goal of harnessing competitive forces to bring down costs and emphasize customer service.[13] The current composition of each U.K. industry segment is detailed below[14]:

GENERATION | As of May 2014, there were 436 generating facilities in operation throughout Britain, owned by 69 different companies; the ten largest generating companies operate more than 75% of installed capacity.[15] As of 2013, coal-fired generation accounted for 36% of delivered energy, while natural gas generation supplied 27%, nuclear contributed 19%, and renewable energy sources[16] made up 16%.[17] This sector is fully competitive.

TRANSMISSION | High-voltage transmission facilities, which transport electricity over long distances between generators and distribution networks, are operated by National Grid in England and Wales, Scottish Power in the south of Scotland, and Scottish Hydro in the north of Scotland. These are regulated as natural monopolies. National Grid also serves as the *transmission system operator (TSO)*—analogous to an independent system operator (ISO) or regional transmission organization (RTO) in the U.S.—in charge of wholesale market coordination for all of Britain.[18]

DISTRIBUTION | Local low-voltage distribution to customers is carried out by 14 *distribution network operators (DNOs)*—similar to distribution utilities in the U.S.—, which are owned by six different companies.[19] These are also regulated as natural monopolies.

RETAIL | There are currently more than 70 companies licensed as U.K. electricity retailers, which procure and sell electricity conveyed over distribution networks to end-users.[20] Although this segment is fully competitive, it has been dominated by the so-called "Big Six" retailers that received retail franchises during privatization. The Bix Six have continued their domination even after retail competition was introduced in the late 1990s.[21]

Accordingly, the basic structure of the various components of the British electricity sector are similar to that in New York and other U.S. states that have unbundled generation and retailing from T&D.[22]

Legal landscapes

While the U.K.'s generation and retail segments have been largely deregulated, they still must comply with certain U.K. laws and regulations. For example, the Department of Energy & Climate Change (DECC) implements U.K. and EU environmental regulations that have potentially significant ramifications for electric generation, retail energy procurement, and retail energy efficiency programs.[23] Wholesale and retail electricity markets in the U.K. remain subject to monitoring, investigation, and enforcement for anti-competitive behavior by the Competition & Markets Authority (formerly the Competition Commission).[24]

Britain's T&D functions remain regulated monopolies subject to an independent regulatory body, the Office of Gas and Electricity Markets (Ofgem), which is funded by annual license fees paid by regulated entities.[25] Ofgem is responsible for setting and enforcing *price controls*—equivalent to U.S. rate plans—for T&D operators through the Gas and Electricity Markets Authority (GEMA). GEMA consists of 13 members appointed for terms of at least five years by the Secretary of State at the DECC. The relationship between Ofgem staff and GEMA members parallels that of the Department of Public Service staff and the PSC in New York; GEMA ultimately enacts price controls and any enforcement activities as amendments to utility operating licenses.[26]

Incentive regulation for electric utilities

While electricity liberalization was aimed at promoting competition, the natural monopoly characteristics of T&D segments posed inherent barriers to competitive entry. This presented regulators with the challenge of keeping private ownership of these assets profitable while preventing monopoly abuses and simulating competitive pressures for efficient performance.

To address these potentially opposing goals, British regulators looked abroad, including to the U.S., for insights into the regulation of private utilities. In an influential 1983 report,[27] Stephen Littlechild argued that

the American practice of *cost-of-service regulation (COSR)*[28] had failed to protect U.S. ratepayers from monopoly abuses.[29] COSR attempts to restrict monopoly power—and hence utility profits—by periodically setting rates that are designed to cover a utility's operating and finance-related expenses and deliver a reasonable return on its capital assets in the next rate period. COSR rates are determined by projecting a utility's costs in a future "test year" based on its reported past costs. This retrospective approach is problematic because it allows utilities to be compensated at previous levels of expenditure regardless of whether sufficient efforts were made to constrain costs. In addition, COSR is characterized by a short rate period—often three years or less—to reduce *regulatory lag* by more frequently incorporating new information, such as changes in the costs of providing service. However, this brief interval between rate reviews gives utilities only a very small window to appropriate cost reductions before they are passed along to consumers as rate reductions.[30] Together, these features of COSR provide poor incentives for utilities to reduce their costs, to the detriment of ratepayers.

To avoid these pitfalls, Littlechild proposed that British regulators employ *incentive regulation* in order to encourage innovation and low-cost operation. Incentive regulation reflected the prevailing philosophy of the Thatcher government that regulation—if any—should be light-handed, promote competition, and advance primarily economic objectives.[31] Under incentive regulation, regulators set a maximum rate or revenue that a utility can charge or collect, which, as under COSR, aims to cover operating costs and deliver a fair return on capital assets. However, the cap under incentive regulation is based not on past performance but rather the regulators' estimates of what is needed to cover *future* efficient operating costs and deliver a competitive return on the utility's necessary capital, called its *regulatory asset value (RAV)*. Once this cap is in place, the utility is permitted to retain savings from any reductions in cost below those deemed efficient. The regulatory period is also generally longer under incentive regulation than under COSR, which gives utilities more time to reap the benefits of efficiency improvements and decreases the frequency of arduous regulatory reviews.[32]

Though fixed at the outset of a regulatory period, price or revenue caps are accompanied by mechanisms to adjust the cap during the regulatory period based on changes in the rate of inflation, as gauged in the U.K. by the retail price index (RPI), and the rate of productivity growth ("X" factor) for a given sector.[33,34]

British regulators applied this "RPI-X" formula to regulate newly privatized utilities in the telecommunications, gas, and water industries during the 1980s, and in the electric T&D sectors beginning in 1990. RPI-X regulation was applied to electric utilities in five-year regulatory periods in which Ofgem specified the maximum rates a utility could charge for its services. The RPI-X formula for adjustments to the initial cap was an attempt to spare Ofgem from the need to exercise the sort of extensive regulatory discretion that had come to characterize protracted rate cases in the U.S.

But as Ofgem gained experience with RPI-X, it modified the initial approach. Ofgem expanded the formula to allow for the passthrough of costs beyond a utility's control (e.g., fuel costs) through a "Y" factor, and included *reopeners*[35] that triggered rate reviews to address unforeseen circumstances.[36] Ofgem also put in place targeted performance incentives to achieve desired social and economic outcomes; these are discussed further in the following section. To accommodate the resulting financial rewards and penalties within a unified regulatory mechanism, Ofgem began to set an RPI-X cap on allowed total revenue, rather than on rates, and eventually used RPI-X to regulate rates indirectly by dividing the revenue cap by annual demand forecasts.[37]

Motivations for reform

In 2008, Ofgem launched an assessment of RPI-X regulation as it approached 20 years in practice. This review, called "RPI-X@20," was effectively a referendum on whether the regime was still "fit for the purpose"[38] of governing an electricity industry that was facing vastly different economic, technological, and policy circumstances than had accompanied the inception of RPI-X. Ofgem reported that RPI-X had reduced energy bills and utilities' borrowing costs, while increasing network investment and improving quality of service and operating efficiency.[39] Nonetheless, RPI-X@20

concluded that the time had come to replace RPI-X with a new form of PBR.

One of the main conclusions of the RPI-X@20 review was that its emphasis on operating cost efficiency had led utilities to be risk-averse, loath to innovate, and unduly focused on appeasing regulators rather than satisfying customers.[40] This created an environment in which utilities were not investing sufficiently in needed infrastructure upgrades nor innovating to identify long-term cost savings. For instance, utilities pursued near-term cost savings by cutting their research, development, and demonstration (RD&D) budgets, because these costs do not drive short-term revenues.[41]

Ofgem concluded that a new approach to regulation was needed in order to foster greater innovation and investment by the industry, particularly in light of new climate policy demands and aging infrastructure. The British government had set ambitious climate commitments in the Climate Change Act 2008, which targeted an 80% reduction in greenhouse gas emissions below 1990 levels by 2050. Ofgem estimated that achieving the government's environmental goals, while making needed network upgrades and keeping energy affordable and reliable, would necessitate £32 billion in utility investments by 2020—an amount roughly twice what the sector had invested in the previous 20 years and nearly 75% of the sector's asset value.[42]

Additionally, while formula-based price controls had been intended to ease the administrative burden of regulation, RPI-X became complicated to administer in practice. Owing to efforts to improve the accuracy of forecasts of the costs of efficient operation—which included commissioning consultant reports, convening academic and stakeholder meetings, and conducting benchmarking analyses—price reviews were taking an average of two years to complete by the end of the RPI-X regime.[43]

Finally, Ofgem found that in practice, inflexible preset price controls can have unintended and undesired side effects, such as reductions in service quality as utilities cut costs to increase profits.[44] To plug these "leaks", Ofgem introduced discretionary reward schemes to incentivize adequate performance in dimensions such as service reliability, reduced network energy losses, and greater investment.[45] While these rolling adjustments during the rate period helped fine-tune utility performance under RPI-X, they also served as evidence of the inability of price regulation to address other goals.

For all these reasons, in October 2010, Ofgem announced that it would no longer set its price controls using the RPI-X formula. Describing this shift, Professor Aileen McHarg wrote that "the regulatory system appears to have reached a tipping point where measures to promote goals such as security of supply and decarbonization are no longer just add-ons, but central to the design of regulatory and market systems."[46]

What is RIIO and how does it work?

The RIIO model, introduced in late 2010 as a product of the RPI-X@20 review process, was intended to achieve sustainable network regulation.[47] RIIO initially denoted "**R**evenue set to deliver strong **I**ncentives, **I**nnovation and **O**utputs,"[48] but has since been simplified to "**R**evenue = **I**ncentives + **I**nnovation + **O**utputs." Unlike RPI-X, RIIO is not a price control system set unilaterally by the regulator; RIIO price controls are the product of negotiated settlements that result in regulatory contracts between Ofgem and regulated utilities.[49]

REVENUE CAP | RIIO builds on RPI-X as an incentive-driven approach to delivering efficient performance. As before, the maximum rates a utility can charge in each year of the price control period are determined by dividing a revenue cap by forecasted annual demand. As it had under RPI-X, Ofgem estimates how much revenue would cover necessary expenditures over the subsequent period, based on estimates of efficient operation, and allows a fair return on the RAV. However, under RIIO, this *base revenue*, which comprises most of the revenue cap, is determined using forecasts of efficient total expenditures (*totex*) rather than distinguishing between operating (opex) and capital (capex) costs.[50] This approach balances the goals of reducing costs (both in the near term and over time) and increasing investment, which are often at odds.

EIGHT-YEAR PRICE CONTROL | While the five-year price control period of RPI-X was viewed as long relative to the U.S., where rate cases typically occur every three years, RIIO price controls will last eight years. This provides

utilities with greater opportunity to retain cost savings without fear of imminent rate adjustment. A longer term also encourages utilities to make investments that have payback periods greater than five years, and thus better aligning investments with long-term network needs.

PERFORMANCE INCENTIVES | RIIO base revenue is augmented with targeted financial incentives determined by the quality of performance or outputs delivered.[51] In contrast to RPI-X, in which ad hoc performance incentives were deployed to address issues as they arose, RIIO employs an integrated suite of performance incentives at the outset of the rate period to improve outputs along six dimensions of interest (*customer satisfaction*, *safety*, *reliability*, *conditions for connection*, *environmental impact*, *and social obligations*). These incentives reflect a paradigm shift to extend regulation beyond rates and revenues to include social and environmental performance. Depending on a utility's performance in these areas, it may receive financial rewards or penalties that adjust its base revenue, making it probable that a utility's actual revenue cap will be higher or lower than that allowance.[52] For example, in the first RIIO controls for electric transmission, Ofgem offered trans-mission operators the Environmental Discretionary Reward Scheme, which provides a share of a £4 million annual reward if they jointly facilitate the integration of low-carbon energy to Ofgem's satisfaction.[53] RIIO has also introduced a mid-period review to ensure that targeted outputs remain appropriate over the full term.[54]

INNOVATION PROVISIONS | In addition to promoting innovation by establishing reward schemes and giving utilities more time to recover investments, RIIO introduces a profit-sharing arrangement to spread efficiency gains among consumers and utility shareholders and diffuse some of the downside risk associated with attempts at innovation.[55] Moreover, in case the incentive properties of RIIO fail to encourage sufficient innovation, Ofgem has provided a limited-time *innovation stimulus package* that it can deploy at its discretion outside of the basic revenue cap and performance incentive framework to reward innovations toward a more sustainable energy sector.[56]

NEGOTIATED SETTLEMENT/BUSINESS PLAN | The foundation of the RIIO regulatory contract is a utility-drafted business plan that is based on the elements summarized above and is informed by extensive consultation with environmental groups, consumer advocates, government officials, and third-party service providers.[57] The stakeholder engagement process allows utilities to determine the costs that they will need to incur to meet customer demands and pursue desired outcomes. Accordingly, utilities articulate in their business plans proposals for their base revenue, the various outcomes of interest that they intend to pursue, the metrics they will use to gauge achievement of those outcomes, and the methods they will employ to manage uncertainty over the eight-year price control period. Ofgem can "fast-track" approval of "well justified" business plans, while subjecting less satisfactory plans to greater scrutiny over a 30-month process.[58] This two-track approach, called "*proportionate regulation*," is how Ofgem hopes to conserve administrative effort during implementation. Once approved, Ofgem incorporates the business plan provisions into proposed modifications to the utilities' operating licenses, subject to utility consent.[59] However, utilities or directly affected third parties[60] can appeal these license amendments to the Competition & Markets Authority,[61] which is charged with promoting competition to benefit consumers.[62]

The first round of RIIO price controls for the U.K.'s electric transmission operators as well as gas transmission and distribution operators went into effect in April 2013. Early results of RIIO's first year have begun trickling in, and will be used to inform RIIO price controls for electric distribution operators, which are scheduled to take effect in April 2015.

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[1] DPS staff report and proposal, Case 14-M-0101: Proceeding on motion of the Commission in regard to Reforming the Energy Vision (N.Y. Pub. Serv. Comm'n Apr. 24, 2014)

[2] DPS staff straw proposal on Track One issues, Case 14-M-0101: Proceeding on motion of the Commission in regard to Reforming the Energy Vision (N.Y. Pub. Serv. Comm'n Aug. 22, 2014)

[3] DPS staff report and proposal (N.Y. Pub. Serv. Comm'n Apr. 24, 2014) at 46

[4] Office of Gas and Electricity Markets (U.K.) (Ofgem), *RIIO: A new way to regulate energy networks. Final decision.* (2010a)

[5] See, e.g., Sonia Aggarwal & Edward Burgess, *Performance-based models to address utility challenges*, 27 ELECTR. J. (2014); GE Digital Energy & Analysis Group, *Results-based regulation* (2013); and Ronald L. Lehr, *New utility business models: Utility and regulatory models for the modern era*, 26 ELECTR. J. (2013).

[6] Peter Fox-Penner, Dan Harris & Serena Hesmondhalgh, *A trip to RIIO in your future?*, 151 PUB. UTIL. FORT. (2013) provides a helpful, if technical, overview of RIIO mechanics.

[7] Energy retailers are often referred to as "suppliers" in the U.K.

[8] John Chesshire, *U.K. electricity supply under public ownership*, *in* THE BRITISH ELECTRICITY EXPERIMENT—PRIVATIZATION: THE RECORD, THE ISSUES, THE LESSONS (John Surrey ed. 1996)

[9] See Robert L. Bradley Jr., *Origins of political electricity: Market failure or political opportunism?*, 17 ENERGY L.J. (1996) for a detailed description of early state utility regulation in the United States.

[10] Tooraj Jamasb & Michael Pollitt, *Incentive regulation of electricity distribution networks: Lessons of experience from Britain*, 35 ENERGY POL. (2007) at 6165

[11] Working Lives Research Institute, *Liberalisation, privatisation and regulation in the UK electricity sector*, in Privatisation of public services and the impact on quality, employment and productivity (PIQUE) (2006)

[12] Competitive opportunities regarding the electric industry, Case No. 94-E-0952, 1996 WL 297402 (N.Y. Pub. Serv. Comm'n May 3, 1996) (Memorandum and resolution)

[13] Jamasb & Pollitt (2007) at 6166

[14] As of 2008, approximately 28% of final electricity costs in the U.K. come from network services and approximately 72% from generating and retailing. Michael G. Pollitt, *The future of electricity (and gas) regulation in a low-carbon policy world*, Special Issue - The Future of Electricity: Papers in Honor of David Newbery ENERGY J. (2008) at 70

[15] Department of Energy & Climate Change (DECC), *Digest of United Kingdom Energy Statistics (DUKES) 2014*, Chapter 5.10 (Power stations in the United Kingdom, May 2014). Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/337677/dukes5_10.xls (accessed 10/23/14)

[16] Includes thermal and non-thermal wind and solar production as well as natural-flow and pumped-storage hydroelectric power.

[17] DECC, *DUKES 2014*, Chapter 5.5 (Electricity fuel use, generation and supply). Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/337657/dukes5_5.xls (accessed 10/29/14)

[18] Ofgem, "The energy network: how it works for you." Available at: www.ofgem.gov.uk/energy-networks (accessed 10/29/14)

[19] Ofgem, "The GB electricity distribution network." Available at: https://www.ofgem.gov.uk/electricity/distribution-networks/gb-electricity-distribution-network (accessed 10/29/14)

[20] Ofgem, "All electricity licensees – registered or service addresses." Available at: https://www.ofgem.gov.uk/ofgem-publications/90728/externalelectricitylist10101014.pdf (accessed 10/23/14)

[21] Office of Gas and Electricity Markets (U.K.) (Ofgem), *Energy supply probe – Initial findings report* (2008) at 18

[22] Note, however, that several British holding companies have subsidiaries that operate across multiple market segments (e.g., generation and retail), in which case these activities are "functionally" unbundled by ring-fencing their respective assets. See Jamasb & Pollitt (2007) at 6166

[23] See, e.g., a recent DECC press release on EU resolution to slash greenhouse gas emissions by at least 40% by 2030, en route to 80% reductions by 2050. Available at: https://www.gov.uk/government/news/eu-agrees-historic-deal-to-tackle-climate-change (accessed 11/4/14)

[24] Note that the wholesale market coordination function is fulfilled by the National Grid plc in its role as TSO, and that National Grid is overseen by Ofgem for its other transmission activities.

[25] Ofgem, "Who we are." Available at: https://www.ofgem.gov.uk/about-us/who-we-are (accessed 11/3/14)

[26] Aileen McHarg, *Evolution and revolution in British energy network regulation: From RPI-X to RIIO*, *in* ENERGY NETWORKS AND THE LAW: INNOVATIVE SOLUTIONS IN CHANGING MARKETS (Martha M. Roggenkamp, et al. eds., 2012) at 316

[27] Stephen C. Littlechild, *Regulation of British telecommunications' profitability: Report to the Secretary of State*, Department of Industry (1983). *Available at* http://books.google.com/books?id=BMIsPAAACAAJ

[28] Also called *rate-of-return regulation*

[29] See Paul L. Joskow, *Incentive regulation in theory and practice: Electricity distribution and transmission networks*, *in* ECONOMIC REGULATION AND ITS REFORM: WHAT HAVE WE LEARNED? (Nancy L. Rose ed. 2014) for a comprehensive assessment of cost-of-service regulation for electric utilities in the U.S.

[30] See, e.g., Paul L. Joskow & Richard Schmalensee, *Incentive regulation for electric utilities*, 4 YALE J. ON REGUL. (1986) at 32 for a discussion of this "institutionalized regulatory lag"

[31] McHarg (2012) at 315

[32] McHarg (2012) at 317

[33] Specifically, rates or revenues are allowed to grow by the difference between the rate of inflation and the X factor; the X factor should reflect the extent to which a regulated industry can increase its productivity more rapidly, but faces input prices that grow less rapidly, than other sectors. Jeffrey I. Bernstein & David E. M. Sappington, *How to determine the X in RPI-X regulation: a user's guide*, 24 TELECOMMUNICATIONS POLICY (2000) at 64

[34] Adjusting for inflation means that prices should decrease in real terms by the amount of X. Michael A. Crew & Paul R. Kleindorfer, *Incentive regulation in the United Kingdom and the United States: Some lessons*, 9 J. REGUL. ECON. (1996) at 212

[35] A reopener is an adjustment mechanism with a prespecified trigger that can initiate an early price review. See, e.g., Fox-Penner, Harris & Hesmondhalgh (2013) at 63

[36] McHarg (2012) at 317

[37] Jamasb & Pollitt (2007) at 6171

[38] Alistair Buchanan, *Is RPI-X still fit for purpose after 20 years?* Beesley Lecture (2008). Available at:

https://www.ofgem.gov.uk/ofgem-publications/52151/ab-oct-speech.pdf

[39] Office of Gas and Electricity Markets (U.K.) (Ofgem), *Regulating energy networks for the future: RPI-X@20 recommendations* (2010b) at 10

[40] Ofgem (2010b) at 10

[41] McHarg (2012) at 321

[42] Ofgem (2010a) at 2

[43] McHarg (2012) at 320

[44] Jean-Jacques Laffont & Jean Tirole, A THEORY OF INCENTIVES IN PROCUREMENT AND REGULATION (MIT Press. 1993)

[45] Jamasb & Pollitt (2007)

[46] McHarg (2012) at 315

[47] Ofgem (2010a)

[48] Ofgem (2010a) at 3

[49] Chris Watts, as quoted in Fox-Penner, Harris & Hesmondhalgh (2013) at 64

[50] Fox-Penner, Harris & Hesmondhalgh (2013) at 64

[51] See, e.g. proposed classifications of RIIO along the spectrum of incentive regulation or PBR in Lehr (2013) at 49 and Fox-Penner, Harris & Hesmondhalgh (2013) at 61

[52] Cloda Jenkins, *RIIO economics: Examining the economics underlying Ofgem's new regulatory framework* (2011). *Available at* http://www.rpieurope.org/publications/2011/Jenkins_RIIO%20Economics_FSR%20working%20paper_130611.pdf at 14

[53] Ofgem, *Environmental Discretionary Reward Scheme: guidance document* (2013)

[54] Paul Whittaker, Personal communication (2014)

[55] McHarg (2012) at 327

[56] Ofgem (2010a) at 11

[57] Office of Gas and Electricity Markets (U.K.) (Ofgem), *Handbook for implementing the RIIO model* (2010c) at 14

[58] Fox-Penner, Harris & Hesmondhalgh (2013) at 63

[59] Ofgem (2010c) at 11

[60] Particularly the statutorily appointed consumer advocate called Citizens Advice (http://www.citizensadvice.org.uk)

[61] Ofgem (2010c) at 19; see also Ofgem, *A guide to price control modification references to the Competition Commission – Licensee and third party triggered references* (2010d)

[62] https://www.gov.uk/government/organisations/competition-and-markets-authority