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RIIO to REV: What U.S. Power Reform Should Learn from the U.K.

By Heather Payne*

“The problem we’re trying to solve is that we all know what the grid is supposed to look like. It should be an integrated networked thing, that has the benefits of central station generation and transmission with the flexibility and innovation of distributed resources. . . . It’s not a question of the technology, it’s the fact that we have a regulatory structure and policies that aren’t building that system. And so it’s a system which is capital inefficient, and it is not leading to a system that is built around the customer.”
Richard Kauffman, New York Energy Czar¹

“Today, as we seek a new paradigm which relies on renewable resources, energy efficiency, demand response and other advanced technologies as intrinsic parts of the electric system, new rates and pricing structures must also be part of this transformation.” Mina Morita, Hawaii’s PUC Chair, and Marco Mangelsdorf, Founder, Hawaii PV Coalition²

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1. Stephen Lacey, *New York’s Energy Czar on the Philosophy Behind the State’s Energy Transformation*, GREENTECH MEDIA (June 12, 2015), http://www.greentechmedia.com/articles/read/new-yorks-energy-czar-on-the-philosophy-behind-new-york-transformation?utm_source=SmartGrid&utm_medium=Headline&utm_campaign=GTMDaily.

2. Mina Morita was Hawaii’s House Energy Chair from 1999 to 2011 and PUC Chair from 2011 to 2015. Marco Mangelsdorf founded the Hawaii PV Coalition and is president of ProVision Solar. Mina Morita & Marco

I. Introduction

Our current electricity economy is in a state of flux, from talk of a “death spiral” and customers abandoning the grid to utilities working to limit renewables and impose fixed fees, ostensibly for grid reliability and stability. Regulatory reform to change how utilities generate power and interact with consumers is occurring all over the country, spurred by new economic realities, customers demanding choice, and federal rules. U.S. regulators want a system that is reliable but promotes competition and other consumer benefits. Many of these have been summed up as wanting a performance-based system rather than a capital-based system.

These conversations will continue—and, in most cases, intensify—as states determine how they are going to address climate change and carbon regulations such as the EPA’s Clean Power Plan. Absent, however, from most of these conversations is any suggestion of lessons learned from the new regulatory performance-based system adopted by the United Kingdom, RIIO. RIIO, which stands for revenue = incentives + innovation + outputs, was designed to achieve many of the same goals as the regulatory reform currently underway in the United States.

The lack of inclusion of RIIO in these conversations may be partly because of the newness of RIIO, the fact that it only applies to transmission and distribution in the U.K., or a lack of understanding among U.S. regulators about RIIO’s performance-based approach. However, given the similarities in goals and desired outcomes, incorporating parts of the RIIO framework into the regulatory discussion in the United States could be especially helpful at this point in time.

While most, if not all, regulatory schemes are complex in order to provide the best possible suite of incentives and to balance competing interests, RIIO’s structure even more than most defies easy, or quick, summarization. Unfortunately, there is no already-existing summary of RIIO which is detailed

Mangelsdorf, *It's Time to End Net Energy Metering in Hawaii*, GREENTECH MEDIA (July 6, 2015), http://www.greentechmedia.com/articles/read/Its-Time-to-End-Net-Energy-Metering-in-Hawaii?utm_source=Daily&utm_medium=Headline&utm_campaign=GTMDaily.

enough to be useful but not so in-depth as to be boggling. However, understanding some of the nuance is necessary to effectively apply parts of the framework to state regulatory reform.

Therefore, after discussing the recent history of and need for regulatory reform in the U.K., this article will summarize the RIIO framework and analyze the three parts best suited for import into the regulatory frameworks of American states. Specifically, the article will evaluate how a performance-based framework with (1) longer rate cases, (2) proportionate assessment, and (3) a focus on total expenditures limiting regulatory asset value, should positively influence the U.S. regulatory landscape.³ While RIIO is only used for transmission and distribution in the U.K., there is a potential for its performance-based approach to be used in generation as well as transmission and distribution in the U.S. The article will discuss how RIIO could be applied across regulatory frameworks in the U.S. to vertically-integrated utilities as well as transmission and distribution networks. As the initial impetus for looking at RIIO was determining how it could apply to New York's Reforming the Energy Vision ("REV") process, the article will conclude with a discussion of how the parts of RIIO highlighted are likely—or not—to be implemented as part of REV, based upon the New York Public Staff's Track 2 white paper.

II. U.K. Market Structure and Recent Regulatory Reform

The U.K.'s electric and gas systems underwent significant changes, including privatization, in the 1990s.⁴ The end result

3. As will be discussed later, typical rate cases in the United States are one to three years. The United Kingdom had historically used five year rate cases, and are moving to eight year rate cases. "Proportionate treatment" is the concept that the "degree of regulatory scrutiny" applied will change based on various inputs. *Strategy Decision for the RIIO-ED1 Electricity Distribution Price Control: Business Plans and Proportionate Treatment*, OFFICE OF GAS & ELEC. MKTS. 1, 4 (2013), <https://www.ofgem.gov.uk/ofgem-publications/47069/riioed1decbusinessplans.pdf>. Limiting total expenditures and regulatory asset value are also discussed in more detail later in the paper. See *infra* p. 56-57.

4. Richard Pond, *Liberalisation, Privatisation and Regulation in the UK Electricity Sector*, WORKING LIVES RESEARCH INST. 1, 2 (2006), http://www.pique.at/reports/pubs/PIQUE_CountryReports_Electricity_UK_N

was that generation is a competitive market, transmission and distribution consist of regulated monopoly businesses, and retail is a competitive market.⁵ Starting in 2008,⁶ the Office of Gas and Electricity Markets (“Ofgem”) for the government of the United Kingdom, began a review of electricity generation and gas supply (Project Discovery) and the transmission and distribution networks used to deliver those utilities to consumers (RPI-X@20). Ofgem’s authority covers the entire United Kingdom, so these analyses were done at a national level.

A. *Project Discovery: Electricity Generation and Gas Supply*

“Project Discovery,” was a “year-long study of whether the current arrangements in [Great Britain were] adequate for delivering secure and sustainable electricity and gas supplies over the next 10-15 years.”⁷ Ofgem felt the study had to be conducted at that time due to new carbon targets, increasing exposure to the global natural gas market, the amount of investment needed, and the scheduled closure of aging generation plants.⁸ These are similar to what is driving regulatory reform in the United States currently.

Project Discovery assessed the risks to generation and

ovember2006.pdf.

5. *Structure of UK Electricity Industry*, RWE NPOWER, <http://www.rwe.com/web/cms/en/286414/rwe-npower/about-us/our-history/structure-of-industry/> (last visited Oct. 7, 2015).

6. *RIO: A New Way to Regulate Energy Networks: Final Decision*, OFFICE OF GAS & ELEC. MKTS. 1, 46 (2010), <https://www.ofgem.gov.uk/ofgem-publications/51870/decision-doc.pdf>; *Regulating Energy Networks For the Future: RPI-X@20 Principles, Process and Issues*, OFGEM.GOV, <https://www.ofgem.gov.uk/publications-and-updates/regulating-energy-networks-future-rpi-x20-principles-process-and-issues?docid=76&refer=Networks/rpix20/ConsultDocs> (last visited Oct 1, 2015).

7. *Project Discovery: Options for Delivering Secure and Sustainable Energy Supplies*, OFFICE OF GAS & ELEC. MKTS. 1, 1 (2010), <https://www.ofgem.gov.uk/ofgem-publications/40354/projectdiscoveryfebcondocfinal.pdf>.

8. *Action Needed So Energy Supplies Remain Secure: Ofgem’s Project Discovery Findings*, OFFICE OF GAS & ELEC. MKTS. 1, 1 (2010), <https://www.ofgem.gov.uk/ofgem-publications/76124/discoveryfs.pdf>; *Ofgem Pushes on with Scrutiny of Security in GB Energy Supply*, OFFICE OF GAS & ELEC. MKTS. 1, 1 (2009), <https://www.ofgem.gov.uk/ofgem-publications/40362/discovery-status-report.pdf>.

supply using four scenarios,⁹ and in all growth and environmental commitment scenarios, the findings from the study were stark: “unprecedented” levels of investment were going to be necessary against a backdrop of increased risk and uncertainty; the lack of investment in low-carbon technologies would likely lead to greater costs to decrease carbon intensity in the future; spot market prices were not high enough to incent additional peaking capacity to be brought online; interdependence with other markets might undermine supply; and higher cost could affect consumer demand, which in turn could impact the competitiveness of business and industry.¹⁰

To address these challenges, Ofgem developed five potential policy responses.¹¹ These policy responses included (1) implementing targeted reforms, (2) enhanced obligations, (3) enhanced obligations plus renewables tenders, (4) capacity tenders, and (5) a central energy buyer. However, each had drawbacks.¹²

9. The scenarios were: high growth/strong environmental commitment; low growth/strong environmental commitment; high growth/low environmental commitment; and low growth/low environmental commitment. *Ofgem Publishes a Comprehensive Review of Britain's Energy Supplies*, OFFICE OF GAS & ELEC. MKTS. 1, 2 (2009), <https://www.ofgem.gov.uk/ofgem-publications/76390/ofgem-discovery-pr8-2.pdf>.

10. *Project Discovery: Options for Delivering Secure and Sustainable Energy Supplies*, *supra* note 7, at 1-2.

11. *Id.* at 3.

12. Targeted reforms would reduce carbon price uncertainty, improve price signals, and improve the ability for demand-side responses. While Ofgem believed targeted reforms would increase incentives while retaining the benefits of a competitive market, there was concern that these might be insufficient to address the need for increased investment to secure supply. Especially with increased exposure to the worldwide natural gas market and recent political instabilities in gas-producing regions, the possibility of insufficient supply could negate the benefits of a competitive market. An enhanced obligations policy—where there would be legal repercussions for companies who did not procure sufficient supply—would require suppliers to address the possibility of those threats. However, this would require market participants to be responsible for supply security, which might be impacted by events beyond their control (like Russia cutting off supply to Europe), leading to a risk that this policy alone would also be insufficient to address the need for increased investment. The enhanced obligations plus renewables tender policy had a similar benefit of requiring market participants to be responsible for supply, but added that industry was also responsible for ensuring that renewables targets were met more efficiently by offering a guaranteed return. This increased certainty would be more likely to ensure that renewable targets would be met, but still had the risk of not addressing all investment challenges or ensuring that longer-term climate

After extensive public comment on the various proposed policy solutions, Ofgem determined that “significant action will be called for to deliver both security of supply and environmental objectives at affordable prices longer term[.]”¹³ The most pressing issues with the current wholesale market included the strength of imbalance price signals,¹⁴ enabling distributed generation, interactions with other markets, available transmission, incentives for the incumbent system operator, and the need for other market reforms.¹⁵ While not as quickly implemented as those dealing with transmission and distribution, a review of electricity balancing arrangements was completed in May 2014,¹⁶ and a capacity market has been implemented, with rules going into effect in March 2015.¹⁷ Reforms to address the other issues raised are under discussion. None, however, is significant to regulatory reforms occurring in the United States.

B. *RPI-X@20: Electricity and Gas Transmission and*

goals would be met. On the other hand, capacity tenders would be sufficient at accelerating investment, as the tender would include all forms of generation, gas storage, and other infrastructure projects. However, this opened the customers to the highest amount of risk, as they would be responsible for “any poor decisions surrounding the type and scale of capacity required.” The last option, considered the most “radical,” was to establish a central energy buyer, responsible for coordinating all future investment, similar to the situation when the utilities were nationalized. While this policy would provide the greatest certainty, legal challenges were likely based on European Union law, customers were still at risk, and there was a fear that innovation would be stifled. *Action Needed so Energy Supplies Remain Secure: Ofgem’s Project Discovery Findings*, *supra* note 8, at 3.

13. *Project Discovery: Options for Delivering Secure and Sustainable Energy Supplies*, *supra* note 7, at 1.

14. Price signals for short-term imbalances on the grid can allow quicker and cheaper balancing; however, if the price signal is not strong enough, then the imbalance will not be rectified at the lowest cost. *Project Discovery: Options for Delivering Secure and Sustainable Energy Supplies*, *supra* note 7, at 19.

15. *Id.* at 19-21.

16. *Electricity Balancing Significant Code Review*, OFGEM.GOV, <https://www.ofgem.gov.uk/electricity/wholesale-market/market-efficiency-review-and-reform/electricity-balancing-significant-code-review> (last visited Oct. 1, 2015).

17. *Capacity Market (CM) Rules*, OFGEM.GOV, <https://www.ofgem.gov.uk/electricity/wholesale-market/market-efficiency-review-and-reform/electricity-market-reform/capacity-market-cm-rules> (last visited Oct. 1, 2015).

Distribution

While the review of the wholesale electricity generation and gas supply market was ongoing, a similar review was taking place for the electricity and gas transmission and distribution network framework. Since privatization, the transmission and distribution networks had been regulated under a revenue control (what Ofgem termed “RPI-X”) framework.¹⁸ Similar to the challenges determined by Project Discovery for generation and supply, the main issues identified in the current RPI-X scheme were customer engagement, value, and the ability of the current network framework to adequately incorporate sustainable generation, low carbon sources, and social targets.¹⁹

Ofgem’s proposed solution recommended a new regulatory framework based on twelve components.²⁰ After extensive consultation and numerous comments, Ofgem adopted a new framework in October, 2010.²¹ This framework was termed the “RIIO model – Revenue set to deliver strong Incentives, Innovation and Outputs.”²² Ofgem adopted RIIO as the “new way to regulate energy networks.”²³ While retaining some of the motivations behind and the structures of the regulatory regime set up during this initial privatization and liberalization of the energy sector, RIIO adjusts the focus of the

18. *Regulating Energy Networks for the Future: RPI-X@20 Principles, Process and Issues*, OFFICE OF GAS & ELEC. MKTS. 1, 17-20 (2009), https://www.ofgem.gov.uk/sites/default/files/docs/2009/02/principles-processes-and-issues-con-doc_final---270209.pdf.

19. *Id.*

20. These components included maintaining the current industry structure including ex-ante control but requiring more consumer engagement, longer price controls (rate cases), and the option of third parties to play a greater role in delivery. Additionally, rate cases would be outputs-led with greater incentives. *Regulating Energy Networks for the Future: RPI-X@20 Recommendations*, OFFICE OF GAS & ELEC. MKTS. (2010), <https://www.ofgem.gov.uk/ofgem-publications/51901/rpi-xrecommendations.pdf> [hereinafter *Regulating Energy Networks for the Future*].

21. *Background — RPI-X@20 Review*, OFGEM.GOV, <https://www.ofgem.gov.uk/network-regulation-riio-model/background-rpi-x20-review> (last visited Oct. 1, 2015).

22. *Regulating Energy Networks for the Future*, *supra* note 20, at 3.

23. *RIIO: A New Way to Regulate Energy Networks: Final Decision*, *supra* note 6.

regulatory framework for the electricity and gas transmission and distribution systems,²⁴ provides for competition, encourages innovation, and modifies the utility regulatory scheme in significant ways.²⁵ A number of these could be beneficial if applied in the United States.

III. RIIO

Ofgem set a number of lofty goals for RIIO to accomplish.²⁶ However, it all boils down to delivering green energy to customers cheaply.²⁷ Additionally, Ofgem wanted the new framework to be “more transparent, more accountable, more accessible and more proportionate.”²⁸ Ofgem importantly recognized that the “nature, scale and location of demand” for

24. *Handbook for Implementing the RIIO Model*, OFFICE OF GAS & ELEC. MKTS. 1, 1 (2010), <https://www.ofgem.gov.uk/ofgem-publications/51871/riiohandbook.pdf>.

In the U.K., these companies are referred to as electricity transmission owners, gas transmission owners, electricity distribution network operators, and gas distribution networks. Generation (supply) and the retail markets are regulated separately. *Id.* at 2.

25. *Regulating Energy Networks for the Future*, *supra* note 20, at 61-65.

26. The stated goal of energy network regulation is generally to “encourage energy network companies to: play a full role in the delivery of a sustainable energy sector [and] deliver long-term value for money network services for existing and future consumers.” *RIIO: A New Way to Regulate Energy Networks: Final Decision*, *supra* note 6, at 8. Sustainability includes a low carbon footprint and other environmental objectives, secure supplies of energy, and meeting the needs of vulnerable customers. *See Handbook for Implementing the RIIO Model*, *supra* note 24, at 2.

27. Customer engagement is a central consideration of RIIO, but that is outside the scope of this paper. In the RIIO framework, the definition of a customer is more encompassing than what utilities typically regard as customers. The definition includes “generators, shippers, interconnectors, independent network operators (IDNOs and IGTs), suppliers and energy service companies (ESCos)” as well as traditional business and home consumers. *Handbook for Implementing the RIIO Model*, *supra* note 24, at 3. Because of the extensive focus on customers, there are significantly more engagement requirements, with the goal of demonstrating the impact of engagement throughout the regulatory process and evaluate whether and how the engagement was successful. Ofgem set the expectation that network companies proactively engage with customers. *Id.* at 13-15. If network companies consistently do not engage customers, Ofgem may place a license requirement that they demonstrate “thorough and ongoing engagement” and take enforcement action if the requirement isn’t met. *Id.* at 16 tbl.1.

28. *Regulating Energy Networks for the Future*, *supra* note 20, at 3.

services are expected to change in the future.²⁹ That is also true in the United States. RIIO anticipates dealing with these changes through a detailed price control review process which sets outputs and other measures for a longer period of time.

A. *Longer Rate Cases, Fewer Regulatory Reviews*

The RIIO framework is meant to fundamentally change the relationship between the regulator and the regulated companies. It does this by changing what is measured and how long it is measured for. Traditionally, regulation was focused on inputs.³⁰ By focusing on outputs rather than inputs, the framework is designed to be more effective, leading to the ability for regulatory reviews to be less frequent.³¹ Also, as in the U.S., most network companies in the U.K. are focused on meeting challenges with additional infrastructure. This infrastructure is then capitalized and added into the rate base. However, this is not always the best option for customers or the cheapest in the long term. This additional certainty would consequently drive innovation and investment.

A price control is similar to a rate case in the United States. The default price control in RIIO—how long the parameters set during the price control review will be in place—is eight years,³² rather than the shorter time frame of five years now utilized.³³ Even with prices set for longer periods, incentives are in place to allow for higher returns for innovative companies exceeding output goals. As an incentive for companies to do well, those companies not meeting output requirements would see lower returns and more regulatory scrutiny.³⁴

29. *Id.* at 10.

30. The State of New York Department of Public Service Staff provided a good overview of cost-of-service ratemaking and concerns with it. SEE STAFF WHITE PAPER ON RATEMAKING AND UTILITY BUSINESS MODELS, N.Y. STATE DEP'T OF PUB. SERV. No. 14-M-0101, at 16-21 (2015) .

31. *Regulating Energy Networks for the Future*, *supra* note 20, at 3.

32. *Handbook for Implementing the RIIO Model*, *supra* note 24, at 27.

33. *Regulating Energy Networks for the Future*, *supra* note 20, at 31.

34. The lower returns would be achieved through cost-sharing mechanisms and asymmetrical incentives. *Id.* at 3.

B. Price Control Review Process

The process that Ofgem uses to implement RIIO is important because it demonstrates both how the performance-based outputs are determined and is also where Ofgem uses proportionate assessment. Both of these should be used in regulatory frameworks in the United States.

Ofgem has defined the detailed process to determine the rates that network companies can charge the public for their services. The amount charged correlates to the amount of revenue they can expect to generate. The price control review process is designed to take approximately 21-30 months to complete and is comprised of four stages. The main actions taken at each stage are summarized in the following table.

Stage	Main Actions
1	Ofgem: (1) defines outputs for the price control period; (2) determines methodologies for proportionate assessment and fast-tracking; and (3) codifies #1 and #2 in a consultation document.
2	Network companies develop and submit business plans. Ofgem reviews and determines level of proportionate assessment and decides on fast-tracking (yes or no). If yes, license conditions set and company moves to Stage 4.
3	Network companies revise business plan based on Ofgem assessment in Stage 2.
4	License conditions set; price control review complete.

First, the Ofgem price control review team will determine outputs and the price control methodology. At the end of Stage 1, a consultation document will define the timetable for the price control review, outline key issues, establish outputs to be delivered during the next period, including the desired level of performance for those outputs, and other parameters.³⁵ This

35. The other parameters include efficiency and output incentives, inflation indexation, business plan requirements, the range of the estimated cost of capital, the length of control, and the use of uncertainty mechanisms. *Handbook for Implementing the RIIO Model*, *supra* note 24, at 9.

document becomes an input for the network companies as they develop their business plans, which are submitted in Stage 2.

Perhaps of most interest for the network companies, the document also lists the criteria which will determine the level of regulatory scrutiny (proportionate assessment).³⁶ Proportionate assessment—how strictly a company’s plan will be scrutinized and how quickly Ofgem will make a decision on the price control review—is based on “(a) the quality of the business plan submitted and (b) the network company’s performance in delivering outputs and value for money in previous periods.”³⁷ Proportional assessment is designed to incent companies to deliver primary outputs well and submit good business plans. By doing so, they will be required to spend less time in a regulatory process, enabling more time to be spent on the business.³⁸

The consultation document also details how the fast-track determination will be made.³⁹ Fast tracking is Ofgem’s way of rewarding businesses with justified plans by accepting the plan with minimal review at Stage 2, essentially bypassing Stage 3 and most of Stage 4.

In Stage 2, network companies develop and submit their business plans. A network company is to determine “what it intends to deliver for consumers of network services over time and what revenue it needs to earn from existing and future customers to ensure delivery is financed[,]” with the company being responsible for justifying all expenditures.⁴⁰ Business plans must also “include reference to . . . the cost of capital they would require to ensure that the package was financeable.”⁴¹ Also, to address the potential for network companies to gravitate toward infrastructure solutions, Ofgem will assess the extent to which a wide range of alternative, non-infrastructure solutions have been proposed in the business plans.⁴²

36. *Id.*

37. *Id.* at 57.

38. *Id.*

39. *Id.* at 9.

40. *Id.* at 47.

41. *Id.* at 49.

42. This includes a wide range of options for reliability. The range of options Ofgem mentions includes things such as pricing methodology and

Ofgem reviews the plans and then determines which companies will receive less regulatory scrutiny (proportionate assessment and fast tracking).⁴³ Well-justified business plans⁴⁴ will likely have a final proposal come out of the price control review process closer to what the company requested. On the other hand, those plans presented to Ofgem with less detail will likely be more heavily scrutinized and more likely to have other evidence applied to the plan.⁴⁵ The assessment tools used by Ofgem to review business plans will also vary according to the level of regulatory scrutiny.⁴⁶

If a company is chosen for fast track at this point, all elements of a price control settlement will be drafted at this stage, including license changes. The fast-tracked companies then move directly to Stage 4.⁴⁷ A company which is not fast tracked moves to Stage 3.⁴⁸ In Stage 3, companies submit revised business plans, addressing comments and concerns made by Ofgem during Stage 2. Ofgem will develop a proposal, including license modifications, in Stage 4.⁴⁹ This will be accomplished by Ofgem taking the business plans and other data provided by the network companies and applying the methodology published previously, using proportionate assessment. After the proposal is submitted, the network companies must decide whether to agree to the proposed price

access rule changes. *RIO: A New Way to Regulate Energy Networks: Final Decision*, *supra* note 6, at 13; see Open Letter from Stephen Smith, Managing Dir., Networks, to Suppliers, generators, customers and other interested parties (Aug. 4, 2009) (<https://www.ofgem.gov.uk/ofgem-publications/44218/impact-cdm-and-dp5-distribution-charges-1-april-2010-customer-letter.pdf>).

43. *Handbook for Implementing the RIO Model*, *supra* note 24, at 10, 58.

44. Ofgem considers a “well-justified” business plan to demonstrate a focus on primary output delivery; consideration of secondary deliverables; a clear and well-evidenced case; an open minded consideration of available options; a link between costs and primary outputs; a consideration of the longer term; value for money; effective engagement with a range of stakeholders; and consideration of working with others. *Id.* at 48-49.

45. Other evidence could include benchmarking, information in other company’s business plans, and historical performance. *Id.* at 55-56.

46. These tools range from an “examination and reassessment of particular project plans” at the light end to “option to require companies to undertake further market testing” at the highest level of regulatory scrutiny. *Id.* at 63 fig. 21.

47. *Id.* at 10.

48. *Id.*

49. *Id.*

control package or seek judicial review.⁵⁰ If agreed to, the proposal is final unless challenged by a third party.⁵¹

C. *Base Revenue, Incentives, Innovation and Outputs*

Network companies, naturally, are interested in what Ofgem will let them charge customers. At a high level, prices are set by Ofgem defining the outputs expected, and network companies creating and justifying plans to deliver these outputs, including revenue levels necessary to deliver efficiently.⁵² To put it more granularly, to determine what revenue network companies can expect (and will be allowed) during the price control period, three things are added together: (1) a baseline revenue allowance⁵³ (expected efficient expenditure, asset value, capitalization, and weighted average cost of capital, among other things); (2) an amount based on rules to adjust revenues in light of a company's performance, comprised of upfront efficiency incentives and rewards/penalties for delivery of outputs (the incentives and outputs piece or RIIO); and (3) an amount based on rules to adjust revenues for other factors, comprised of indexation and other uncertainty mechanisms.⁵⁴ These, plus innovation, are explored in more detail.

1. Base Revenue

Unlike the traditional cost of service regulatory approach employed in the United States,⁵⁵ RIIO is a performance-based

50. *Id.* at 11. If they do not agree to the final control package, the case is referred to review by the Competition Commission. The Competition Commission is independent and functions similarly to judicial review in the United States. *Id.* at 20.

51. There are only two grounds on which a modification request may be made: that the final proposal 1) operates against the public interest; or 2) may be expected to operate against the public interest. However, third parties wanting to challenge any final proposal and settlement must also demonstrate that they have been effectively engaged throughout the price control review process. *Id.* at 21.

52. *Regulating Energy Networks for the Future*, *supra* note 20, at 17.

53. *Handbook for Implementing the RIIO Model*, *supra* note 24, at 56.

54. *Id.* at 29.

55. JONATHON A. LESSER & LEONARDO R. GIACCHINO, *FUNDAMENTALS OF ENERGY REGULATION* 67 (2007).

regulatory scheme with a regulated revenue allowance. Ofgem's base revenue calculation starts with an "assessment of expected efficient costs required, during the eight-year control period, to deliver the primary outputs over time and to deliver long-term value for money. The assessment of expected efficient costs . . . will be largely based on [Ofgem's] assessment of the company's business plan."⁵⁶

Allowances for taxation, capitalization and depreciation will then be added to that expected efficient assessment. Like most utility regulatory regimes,⁵⁷ Ofgem's assessment will incorporate a rate of return on asset value ("RAV").⁵⁸ The purpose of the allowed RAV is twofold: 1) to compensate investors; and 2) to provide value which facilitates investment in new infrastructure.⁵⁹ However, when assets are added to a utility's asset base, consumers pay RAV on them for the entire life of the asset—much longer than one rate control period. Therefore, to ensure network companies are not growing the asset base to increase revenues, RIIO focuses on total cost.

The focus on "totex"⁶⁰—total costs of delivery—rather than the specific cost categories of operational expenses ("opex") and capital expenses ("capex")⁶¹ will theoretically drive efficiency, with money being spent where it will most help deliver outputs. Even with this overall measure being used and with well-justified business plans, however, Ofgem recognized the potential for delivery companies to inflate expenditures.⁶² To

56. *Handbook for Implementing the RIIO Model*, *supra* note 24, at 56.

57. LESSER & GIACCHINO, *supra* note 55, at 44-45.

58. Ofgem has committed to using "a real, weighted average cost of capital" ("WACC") to set the rate of return allowed, with the cost of debt assumed in WACC based on a long-term trailing average, updated annually. *Handbook for Implementing the RIIO Model*, *supra* note 24, at 105, 108-09. A capital asset pricing model will be used to determine the cost of equity fed into the WACC. *Id.*

59. *Id.* at 108.

60. RIIO defines totex "the companies' controllable costs which exclude business rates, license fees, pension's contributions and shrinkage." *RIIO-GD1 Annual Report 2013-14*, OFFICE OF GAS & ELEC. MKTS. 1, 41 n.24 (2015), https://www.ofgem.gov.uk/sites/default/files/docs/2015/03/riio-gd1_annual_report_2013-14-final.pdf.

61. *Handbook for Implementing the RIIO Model*, *supra* note 24, at 64. Additionally, Ofgem plans to benchmark firms "based on the total costs of delivering the baseline performance level for primary outputs" during the business plan review. *Id.* at 61.

62. Unfortunately, Ofgem did not come up with a completely suitable

partially address this issue, Ofgem will set a fixed percentage of total expenditure that can be capitalized during the price control period.⁶³ This will limit the amount that a company can add to its RAV. This should also incent more efficient deployment of capital, as network companies should spend capital on initiatives that are most aligned to delivering the performance-driven outputs. If network companies need to overspend capital to achieve an output, that capital essentially becomes the equivalent of opex (and does not get added into the asset base).

“The fundamental economic goal of regulation is straightforward: *to mimic a competitive market outcome, even when the underlying market is not competitive.*”⁶⁴ Ofgem hopes setting the totex expected efficient expenditure allowance, limiting the amount of totex that can be capitalized and, therefore, limiting the increase in asset base, will achieve that goal.

2. Incentives

The incentives as part of the RIIO framework are designed to focus on output delivery performance, using “uncertainty mechanisms” where these add value for the customer, and “symmetric upfront efficiency incentive rate for all costs.”⁶⁵ The incentive portion is similar to cost sharing – if a network company found a way to deliver outputs at a lower cost, then it would earn higher profits but part of that benefit would be shared with consumers. Likewise, if costs increased above what was expected, consumers would pay only a portion of those charges, and profits would decrease by the rest.⁶⁶ Specific incentives for delivery are set during the price control review process.⁶⁷

countermeasure. *Regulating Energy Networks for the Future*, *supra* note 20, at 38.

63. *Handbook for Implementing the RIIO Model*, *supra* note 24, at 109.

64. LESSER & GIACCHINO, *supra* note 55, at 17.

65. *RIIO: A New Way to Regulate Energy Networks: Final Decision*, *supra* note 6, at 3.

66. *Regulating Energy Networks for the Future*, *supra* note 20, at 41.

67. *Handbook for Implementing the RIIO Model*, *supra* note 24, at 74. Financial incentives will be used by Ofgem to incent delivery of outputs when “there is clarity on the primary outputs to be delivered; there is confidence in

In addition to financial incentives, Ofgem will set a “fixed and symmetric efficiency incentive rate” during each price control review.⁶⁸ This is essentially designed as a risk-sharing mechanism, with the efficiency incentive rate as the “sharing factor.”⁶⁹ The same rate applies to operating and capital expenditures. Therefore, utilities are not being rewarded just for spending more capital.⁷⁰

Due to the long time frame and the fact that many of the inputs are based on assumptions, there will always be some uncertainty, both in revenue and primary output projections.⁷¹ In addition to the efficiency incentive rate, Ofgem envisions three types of uncertainty mechanisms which allow revenue to change during the price control period, including some which will adjust automatically.⁷² Prices will be indexed to the retail

the data used to measure performance; [Ofgem] consider[s] delivery of the primary output to be important; and there are not already incentives in place on the network company though other schemes or obligations.” *Id.* at 76. What level of incentive – and, therefore, how strong of a market signal the incentive would send – will also depend on confidence in the accuracy and reliability of data. Incentives are not uniform, but can vary by company. *Id.* at 78. Non-financial (reputational) incentives may be used when financial incentives are inappropriate for a particular output. *Id.* at 79.

68. This efficiency incentive rate is “a commitment to the way that the revenue that the company is allowed to collect adjusts upwards or downwards in light of what it actually spends during the price control period.” *Handbook for Implementing the RIIO Model*, *supra* note 24, at 83-84. “If the efficiency incentive rate is set at 40 per cent, the company’s investors will earn £40 profit (before tax) for each £100 that the company saves during the price control period and bear £40 of each additional £100 the company spends. The remainder will be passed on to consumers through lower or higher network charges.” *Id.*

69. *Id.* at 84.

70. The lower boundary of the rate is set by Ofgem at a level where it feels companies will have sufficient disincentive to overspend unnecessarily to increase the company’s regulatory asset value. *Id.* Adjustments based on the efficiency incentive rate will be made annually, but on a time lag to allow for audited data to be used. The company may then charge customers based on the adjustments. *Id.* at 87.

71. *Id.* at 89.

72. The three types of uncertainty mechanisms are: 1) uncertainty mechanisms fully-calibrated at the price control review (e.g., indexation, volume drivers, revenue triggers, and use it or lose it mechanisms) where no review is conducted and revenue adjustments occur automatically; 2) forward-looking revenue adjustment determined by Ofgem during the price control (e.g., revenue adjustment based on updated cost assessment if a trigger event occurs); and 3) revenue allowance determined after company incurs relevant expenditure (e.g., pass-through items, logging-up of actual expenditures subject to ex post efficiency review, and backward-looking

price index, so prices will rise regularly during the price control period,⁷³ and expenditures during the price control period will continue to be adjusted for inflation as they have been in the past.⁷⁴ Aside from that automatic adjustment, an uncertainty mechanism will only be included if doing so provides value for consumers; no uncertainty mechanism will be included without a clear rationale.⁷⁵ Uncertainty mechanisms would also ideally “shield a network company entirely from the effects of rising and falling volume.”⁷⁶

Under RIIO, unlike the current state of affairs, third parties could be given control of large delivery projects, assuming these can be separated from the legacy company and where this would drive innovation and value.⁷⁷ Interestingly, one of the potential issues this could create is uncertainty around legacy network company revenues.⁷⁸ Comments received while RIIO was being developed indicated that the incumbent network companies “expressed concerns” about this potential.⁷⁹ Essentially a disincentive, this proposal was primarily designed as a threat to ensure the companies with present licenses behave appropriately.⁸⁰

3. Innovation

Innovation is to be encouraged through incentives controlling price, the potential to give responsibility for

revenue adjustment based on benchmarking analysis of outturn costs), with revenue adjusted after the magnitude of the expenditure is known. *Id.* at 90-92. “Outturn” is defined by the Financial Times as “the actual amounts, results etc. at the end of a period of activity, rather than those that were expected or calculated earlier.” *Definition of Outturn*, FIN. TIMES LEXICON, <http://lexicon.ft.com/Term?term=outturn> (last visited Oct. 7, 2015).

73. *Regulating Energy Networks for the Future*, *supra* note 20, at 28.

74. *Handbook for Implementing the RIIO Model*, *supra* note 24, at 100. This is currently the retail prices index, and will continue to be the RPI. While some suggested a move to the consumer price index, Ofgem considered that unrealistic given that “corporate and government index-linked bonds continue to use RPI as the relevant index.” *Id.*

75. *Id.* at 95-96.

76. *Id.* at 100.

77. *Regulating Energy Networks for the Future*, *supra* note 20, at 34.

78. *Id.* at 38.

79. *RIIO: A New Way to Regulate Energy Networks: Final Decision*, *supra* note 6, at 34.

80. *Regulating Energy Networks for the Future*, *supra* note 20, at 40.

delivery to third parties, providing stimulus funds, and creating “prizes” for innovation in specific areas.⁸¹ Also in terms of innovation, the goal is to encourage both technological and commercial innovation. While some innovation may be accomplished through the price control process or the involvement of third parties, innovations with a less clear path to commercialization may need additional funding.⁸² Therefore, RIIO also includes an innovation stimulus, which is open to both network companies and non-network parties.⁸³ Non-network companies will be able to suggest and be awarded funding, and the expectation is that network companies will open their networks for testing and trials of new technologies.⁸⁴

4. Outputs

In the RIIO framework, outputs are set out in the utilities’ operating license, so consumers know what they are paying for. Outputs are designed to be “a comprehensive reflection of the outcomes that matter to the users of the network, as well as being material, controllable, measurable, comparable, applicable and legally compliant.”⁸⁵ In determining which outputs will be measured, Ofgem established six categories: customer satisfaction, reliability and availability, safe network services, connection terms, environmental impact, and social obligations.⁸⁶ For each primary output (and any secondary deliverables), Ofgem will determine the base level that

81. *RIIO: A New Way to Regulate Energy Networks: Final Decision*, *supra* note 6, at 3.

82. *Regulating Energy Networks for the Future*, *supra* note 20, at 51-52.

83. However, non-network parties would need to have a license to participate in the program. *Id.* at 125-26. The stimulus innovation package “will provide partial funding for innovation projects that relate to the provision of network services and have as their intent delivery of a sustainable energy sector.” *Handbook for Implementing the RIIO Model*, *supra* note 24, at 128. Any stage of innovation is eligible for funding, from basic research and development to pilot projects, with projects chosen through a competitive grant process. *Id.* at 123. *See generally Network Innovation*, OFGEM.GOV, <https://www.ofgem.gov.uk/electricity/distribution-networks/network-innovation> (last visited Oct. 1, 2015).

84. *Handbook for Implementing the RIIO Model*, *supra* note 24, at 127-28.

85. *RIIO: A New Way to Regulate Energy Networks: Final Decision*, *supra* note 6, at 22.

86. *Id.* at 21.

companies are expected to meet during each price control.⁸⁷

For customer satisfaction, reliability and availability, and conditions for connection, the primary outputs should demonstrate delivered service level and “relate to the service for consumers and network users.”⁸⁸ For environmental impact, the primary outputs should demonstrate the impact on environmental targets. For social obligations and safety, the primary outputs should show compliance with legislation.⁸⁹ Performance levels for primary outputs can be expressed either as a percent change or an absolute number.⁹⁰ These outputs are then inserted into the company’s license as a condition.⁹¹

How companies are doing in relation to these metrics are published annually, primarily to incent consistent action on the basis of reputation and the possibility of it becoming tarnished.⁹² Additionally, a balanced scorecard with all outputs will be developed for each network sector, enabling comparison between companies.⁹³ These outputs and deliverables will remain in place for the entire eight-year period, and potentially much longer.⁹⁴ What these primary outputs and secondary deliverables⁹⁵ are, will directly impact the price allowed to be charged during the price control review

87. *Regulating Energy Networks for the Future*, *supra* note 20, at 24.

88. *Handbook for Implementing the RIIO Model*, *supra* note 24, at 34.

89. *Id.*

90. *Id.* at 46.

91. *Id.* at 81.

92. *Regulating Energy Networks for the Future*, *supra* note 20, at 40.

93. *Handbook for Implementing the RIIO Model*, *supra* note 24, at 80.

94. *Id.* at 32.

95. Secondary deliverables are envisioned to manage network risk, provide the means for delivering primary outputs in the future, and allow for technical and commercial innovation projects. Therefore, one of the main purposes of secondary deliverables are to give network companies the ability to invest more during this price control period than what is necessary for simply meeting primary outputs. As such, they are likely to be intermediate outputs, as there must be some measure to hold network companies accountable. To aid in accountability, secondary deliverables should focus on what the “means to the end” is, rather than pertain to a specific method of delivering that end. However, this additional investment will only be allowed to occur where the business plan shows benefit over the long term during future price control periods. Including secondary deliverables is not a foregone conclusion; they will only be included when there is a clear and credible case for including one due to the added administrative burden. And whatever secondary deliverables are agreed upon, network companies are still required to meet all primary outputs. *Id.* at 39-40, 43-45.

period, as these are what the network companies' business plans must be designed to deliver.⁹⁶

The specific outputs—and how companies are meeting them—also provide an opportunity for customer engagement. Knowing these outputs in advance also ensures that there are incentives for companies to deliver.⁹⁷

D. *Mid-period reviews / potential for change*

Ofgem also expects RIIO to adapt; following price control reviews, summary documents will be published which will include lessons learned.⁹⁸ Standardized data collection will continue and will aid in benchmarking.⁹⁹ Additionally, RIIO is designed with one mid-period review to occur during the fourth year of the price control period and to take effect at the beginning of the fifth. A mid-term review, while standard, is very limited in scope and would “only result in changes to revenue where requirements on the network companies change significantly.”¹⁰⁰

Changes made during the mid-period review will heavily depend on whether primary outputs need to change.¹⁰¹ If they do, Ofgem acknowledges that revenues may also need to be adjusted, but “[a]ny changes to allowed revenues will focus on the incremental impact on expenditure requirements from the specific change to outputs, without re-opening the whole price control.”¹⁰² Items outside that limited scope will be managed in

96. *Id.* at 32.

97. *RIIO: A New Way to Regulate Energy Networks: Final Decision*, *supra* note 6, at 3.

98. *Handbook for Implementing the RIIO Model*, *supra* note 24, at 12.

99. *Id.*

100. *Regulating Energy Networks for the Future*, *supra* note 20, at 32. The scope of the mid-period review will clearly be defined in the price control review process and set out in the license conditions, but would not include a review of past expenditures, financial assumptions, or incentive arrangements. *Handbook for Implementing the RIIO Model*, *supra* note 24, at 28. Incentive mechanisms, rate of return, or other parameters would not change unless forced to do so by output changes. *RIIO: A New Way to Regulate Energy Networks: Final Decision*, *supra* note 6, at 27.

101. The limited scope is necessary to ensure that the incentive signals function appropriately. *Handbook for Implementing the RIIO Model*, *supra* note 24, at 93.

102. *Id.*

other ways, including incentives.

E. *Implementation*

Importantly, Ofgem concluded that RIIO could be effectively implemented “under the existing industry structure,”¹⁰³ and was first used to set prices for transmission¹⁰⁴ and gas distribution¹⁰⁵ in 2013 and electricity distribution in 2015.¹⁰⁶

For the gas distribution network price control, which sets the revenues gas distribution network (“GDN”) companies can recover and the outputs they will deliver between April 1, 2013, and March 31, 2021, no network company was fast-tracked, although Ofgem did note that the business plans were generally of higher quality than they had received in the past.¹⁰⁷ Ofgem clearly identified expected outputs:

[W]e expect GDNs to reduce the safety risk by 40-60 per cent during RIIO-GD1. We also expect GDNs to reduce gas transport losses, which comprise 95 per cent of GDNs’ carbon footprint, by 15 to 20 per cent by the end of the period. . . . [W]e will require GDNs for the first time to deliver an improvement in the public awareness of the risks of carbon monoxide (CO) poisoning, a key gas safety issue. We will publish an assessment of GDNs’ comparative performance. We will also require GDNs to connect around 80,000 fuel poor customers to the gas network over the price control period.

We will require the GDNs to deliver

103. *Regulating Energy Networks for the Future*, *supra* note 20, at 13.

104. *RIIO-T1 Price Control*, OFGEM.GOV, <https://www.ofgem.gov.uk/network-regulation-riio-model/riio-t1-price-control> (last visited Oct. 1, 2015).

105. *Id.*

106. *RIIO: A New Way to Regulate Energy Networks: Final Decision*, *supra* note 6, at 4; *RIIO-T1 Price Control*, *supra* note 104.

107. *RIIO-GD1: Final Proposals-Overview*, OFFICE OF GAS & ELEC. MKTS. 1, 7-8 (2012), <https://www.ofgem.gov.uk/ofgem-publications/48154/1riiogd1fpoverviewdec12.pdf>.

improvements in customer services. We have set out a financial incentive mechanism to reward (or penalise) their performance. Overall, GDNs will need to improve customer satisfaction from current levels to the upper quartile GDN performance to avoid a penalty and earn a reward. We are also confirming standards for connecting new customers to their network, as well as our intention to develop voluntary standards for biomethane connections.

Finally, our reliability output measures will require GDNs to maintain the integrity of network assets, as well as meet the current network capacity and security of supply standards.¹⁰⁸

Ofgem's goal is to maintain the efficiency incentive rate was around 50% for all sectors.¹⁰⁹ At 50%, any cost overruns would be split between customers and investors evenly. The same would be true for any cost savings. For this gas price control period, while it varies by company, the range is 62-64%.¹¹⁰ On the innovation side, Ofgem requested network companies submit innovation strategies, which could be funded with between 0.5% and 1% of overall revenue. At final settlement, the Network Innovation Allowances ranged from 0.5% for those plans Ofgem felt performed poorly against their assessment criteria to 0.7% for those strategies that were better justified.¹¹¹ In terms of uncertainty mechanisms, in addition to the automatic annual indexation change,¹¹² Ofgem is allowing revenue discussions to be reopened for smart metering cost recovery.¹¹³

108. *Id.* at 4-5; See generally *RHIO-GDI: Final Proposals - Supporting Document - Outputs, incentives and innovation*, OFFICE OF GAS & ELEC. MKTS. (2012), <https://www.ofgem.gov.uk/ofgem-publications/48155/2riiogd1fpoutputsincentivesdec12.pdf>.

109. *RHIO-GDI: Final Proposals-Overview*, *supra* note 107, at 11.

110. *Id.* at 29.

111. *Id.* at 21-22.

112. *Id.* at 33.

113. *Id.* at 31. Ofgem will also allow GDNs to request reopening if "uncertain costs" climb to a pre-set cumulative cap. *Id.* at 32.

On the financial side, the weighted actual cost of capital was set at 4.2%. Ofgem re-committed that well-performing network companies “can earn post-tax real double-digit returns on (notional) equity, and GDNs who perform poorly would be exposed to returns at or below the cost of debt.”¹¹⁴

The first annual summary report detailing outcomes under the gas distribution price control was issued by Ofgem in March, 2015.¹¹⁵ Ofgem noted that “[t]here are a few specific outputs within the safety and reliability output commitments that need attention because the required level in the first year hasn’t been met or is forecast to fall short over the RIIO-GD1 period.”¹¹⁶ For safety, the output not being met is repair risk; for reliability, the issues relate to supply interruptions.¹¹⁷ One GDN is not meeting customer survey targets for connection and planned interruption surveys and was penalized using the incentive mechanism.¹¹⁸ All other primary outputs are being met.¹¹⁹

Forecasting performance over the entire eight-year price control period, GDNs expect their actual costs will be 11% below the allowance set by Ofgem, with investors reaping 64% of those savings and customers 36% through the ratios set in the efficiency incentive.¹²⁰ Returns on regulated equity are expected to be between 8.9% and 11.8% over the period, assuming all GDNs deliver outputs at the required level for the entire period.¹²¹ No claims under uncertainty mechanisms were made during the first year.¹²² Overall, Ofgem expects the gas distribution component of an average annual consumer’s bill will decrease by almost £1 per year over the eight year price control period.¹²³

As it may be the one most applicable to the regulatory changes occurring in the United States, looking at the

114. *Id.* at 38.

115. *RIIO-GD1 Annual Report 2013-14*, *supra* note 60 at 6.

116. *Id.*

117. *Id.*

118. *Id.* at 6, 28.

119. *Id.* at 16-38.

120. *Id.* at 7.

121. *Id.*

122. *Id.* at 45.

123. *Id.* at 7.

electricity distribution price control could be most instructive. One electricity distribution network company, Western Power Distribution, was fast-tracked, and had its license conditions issued in May, 2014. The remaining network companies received their license conditions implementing Ofgem's final determinations in February 2015.¹²⁴ Unfortunately, as this is the last group of network companies to implement RIIO, no data are yet available.¹²⁵

IV. How RIIO Should Inform the U.S.

The U.K. and many systems in the U.S. have the same goals, and the same challenges. Goals include delivering a low carbon economy, with smarter networks, customer choice, at a lower cost to the consumer. Shared challenges are the increased use of distributed generation, extending high voltage transmission lines to move energy from utility-scale renewable generation to load centers, and an increase in intermittent generation.¹²⁶ All of these suggest a move toward performance-based regulation.

A. *Regulatory Frameworks in the United States*

In order to analyze if RIIO could be applicable in the United States, it is useful to look at the regulatory frameworks employed by various states. At a high level, most regulatory frameworks fall into one of two categories: vertically integrated or deregulated.

In a fully regulated/vertically integrated utility model, the utility is responsible for generation, transmission and distribution, and the retail functions for consumers within a specific service territory. The utility often owns many of the generation assets and the transmission and distribution lines. There is no choice for the retail consumer. North Carolina,

124. *RIIO-ED1 Price Control*, OFGEM.GOV, <https://www.ofgem.gov.uk/network-regulation-riio-model/riio-ed1-price-control> (last visited Oct. 1 2015).

125. *Network Performance Under RIIO*, OFGEM.GOV, <https://www.ofgem.gov.uk/network-regulation-riio-model/network-performance-under-riio> (last visited Oct. 1, 2015). Ofgem expects to publish performance information and data after the first year of operation of the price control. *Id.*

126. *Handbook for Implementing the RIIO Model*, *supra* note 24, at 51.

South Carolina, Alabama, Mississippi, and Colorado are examples of where utilities are still vertically integrated.

In a deregulated market, a grid operator manages the wholesale market for generation. A regulated utility handles the transmission and distribution. Customers can choose their supplier, who purchases generation on the wholesale market and then sells it to those consumers with whom that supplier has a contract. This enables consumers, if they choose, to specialize their utility offering. For example, customers can determine what mix of generation assets they want producing their energy, such as 100% solar or 100% renewables. Consumers can also opt for suppliers which offer cheaper rates at night and on the weekends or other time-of-use options. New York, Pennsylvania, Massachusetts, and Texas are all deregulated markets.

B. *Applying RIIO*

Parts of RIIO should be applied to both frameworks. While RIIO only applies to transmission and distribution in the U.K., there is no reason why RIIO's solutions should not apply to generation as well as transmission and distribution in the U.S since both face similar issues. Specifically, the adoption of longer rate cases, proportionate assessment, and a focus on total expenditures limiting regulatory asset value should be applied in each model.

Under RIIO, rate cases are set for eight years, rather than the one to three years common in the United States currently.¹²⁷ However, just because a long rate-case period occurs, that does not mean utilities can simply continue to operate without risk of regulatory action for that period of time. All have performance targets, and those targets can come with automatic penalties for failure to meet them.

127. New York's REV process is looking at length of rate cases, and California is actively exploring rate reform, including duration, but it doesn't appear either is looking at a period as long as eight years. California's current timing is for a generate rate case to occur every three years. Jeff St. John, *Inside SoCal Edison's Plan to Open Its Grid to Distributed Energy*, GREENTECH MEDIA (July 1, 2015), https://www.greentechmedia.com/articles/read/inside-socal-edisons-plan-to-open-its-grid-to-distributed-energy?utm_source=Storage&utm_medium=Headline&utm_campaign=GTMDaily.

Annual reports summarize how all companies within that sector are performing against target, with call-outs for which metrics are not being met now and which ones may not be met in future years. Mid-year reviews ensure that network companies are working efficiently and meeting targets. Utilities are punished for lack of performance, as they can have revenues decreased annually based on incentive penalties for not meeting outputs. If the poor performance or inefficiency continues, they endure more intrusive and heavy-handed regulation along with lower returns. Importantly, in RIIO, poorly performing or inefficient utilities “could see rates of return below the cost of debt.”¹²⁸ This potential does not exist currently for regulated utilities in the United States. It should.

This output- and metric-driven performance-based structure unites well with the theory of proportionate treatment,¹²⁹ where companies are scrutinized during rate cases and other regulatory proceedings based on how well they have met expectations, including how efficiently they have spent ratepayer funds in the past. This does several things. First, it incents utilities to provide good information, deliver the outputs promised, including safety, health, and environmental goals, and provide improved customer service. Second, it rewards these companies by decreasing their regulatory burden, freeing them to spend more time running their business and continuing to improve outputs.¹³⁰

Incorporating this idea of proportionate treatment into U.S. regulatory reform for both generation and transmission and distribution would provide the same benefits. Rather than all utilities going through the same integrated resource plan (IRP) process, for example, well-justified, customer- and efficiency-centric plans which also met safety, health and

128. *Regulating Energy Networks for the Future*, *supra* note 20, at 47.

129. *Handbook for Implementing the RIIO Model*, *supra* note 24, at 61.

130. Incidentally, this is similar to a situation my father, Edwin Simon, a former U.S. Marine, told about basic training. The unit with the best daily performance did not have to work at kitchen duty the next day. Once his unit achieved the best daily performance, they spent the time everyone else was doing kitchen duty the next day doing extra drills, to ensure that they were the best that day as well, and, therefore, did not have to do kitchen duty the next day either. This continued daily for the rest of basic training, ensuring the unit never had to do kitchen duty. Rather than spending their time on administrative issues, they focused instead on increasing performance.

environmental goals could be subject to a fast-track mechanism with less regulatory scrutiny. For rate cases and distribution resource plans, the same could be true. Utilities that submit cases or plans which fall short of public expectations around service, environmental management, and cost controls would be subject to more scrutiny and, therefore, a higher administrative and regulatory burden. Additionally, Ofgem and many states have already decoupled energy sales from utility profits directly; however, all are dealing with the similar constraints that utilities have a profit motive to expand capital investments, since each still includes a rate of return on assets in transmission and distribution utility profits.¹³¹ The same is true for generation assets in vertically integrated utilities. Focusing on total expenditures, rather than either on operational expenses or capital expenses, is one way for regulators to manage these long-lasting costs to ratepayers. Limiting—as a percentage—the amount of total expenditures utilities can add to regulatory asset value and using a real weighted average cost of capital could ensure utilities are not making unnecessary capital investments, locking consumers into paying for unnecessary equipment in rate cases for decades to come. The potential for this long-term asset padding is something regulators may need to be especially mindful of as regulatory incentives and frameworks change.¹³²

131. Bentham Paulos, *Regulating the Utility of the Future: Implications for the Grid Edge*, GREENTECH MEDIA (Jan. 2015), 1, 14 <http://www.greentechmedia.com/research/report/regulating-the-utility-of-the-future>.

132. For example, ComEd is planning on spending \$2.6 billion over 10 years on infrastructure, which will be added into the rate base. Jeffrey Tomich, *ComEd CEO Pramaggiore: 'Network Economies Rule'*, ENERGYWIRE (July 23, 2015), <http://www.eenews.net/energywire/2015/07/23/stories/1060022279>. SoCal Edison is planning on spending \$347-560 million between 2015 and 2017, and then an additional \$1.4-2.585 billion between 2018 and 2020. Jeff St. John, *California's Distributed Energy Grid Plans: The Next Steps*, GREENTECH MEDIA (July 7, 2015), http://www.greentechmedia.com/articles/read/californias-distributed-energy-grid-plans-the-next-steps?utm_source=Solar&utm_medium=Picture&utm_campaign=GTMDaily. Even Duke Energy, operating where there is no push to deregulate, is putting more equipment into the capital base than is currently needed: “We’re going to build headroom into our systems, today and into the future[.]” Jeff St. John, *The Big Picture from Grid Edge Live 2015*, GREENTECH MEDIA (June 29, 2015), <http://www.greentechmedia.com/articles/read/the-big-picture-from-grid-edge-live-2015>.

Having an annual scorecard between all companies in a sector adds to transparency, increasing customer trust. This is clearly possible in deregulated markets, where potentially numerous companies exist under the purview of a single regulator. New York's transmission and distribution utilities are an example of this. However, in places like North Carolina where there is essentially a single, vertically integrated utility, a state-level scorecard comparison would be meaningless. However, benchmarking across state lines is still possible. While this may be more complicated due to state-level control, it is possible for state regulators to work together to require even vertically integrated utilities to submit figures calculated in the same manner and including the same information. That way, they, as regulators, could have better data with which to assess their utilities.

V. Regulatory Reform Currently Underway in the U.S.: New York As A Case Study

States within the U.S. are grappling with some of the same challenges identified by Ofgem: how to adapt the regulatory structure to incorporate low carbon generation, enabling transmission investment, and doing both while maintaining affordability and reliability. New York's Reforming the Energy Vision ("REV") process is especially insightful as to where RIIO's concepts could be applied, as New York has the same regulatory structure as the United Kingdom: competitive wholesale generation, regulated monopoly transmission and distribution, and competitive retail. This section will therefore discuss REV and the extent to which it does – or does not – learn from RIIO's example.

New York is currently undergoing, arguably, the largest structured rate reform process in the United States, and, like RIIO, it's turning out to be very complex.¹³³ REV will look at both incentives used in setting rates, including "input versus

133. Katherine Tweed, *Wants Versus Needs: The Struggle to Realize New York's Energy Vision*, GREENTECH MEDIA (May 27, 2015), http://www.greentechmedia.com/articles/read/wants-vs.-needs-the-struggle-to-realize-new-yorks-energy-vision?utm_source=Daily&utm_medium=Headline&utm_campaign=GTMDaily.

outcome-based ratemaking,” and rate design.¹³⁴ The goal is “to create excellent, innovative companies.”¹³⁵ Similar to RIIO, REV has six policy goals: enhanced customer knowledge¹³⁶ and tools that will support effective management of their total energy bill; market animation and leverage of ratepayer contributions; system-wide efficiency; fuel and resource diversity; system reliability and resiliency; and reduction of carbon emissions.¹³⁷

Of course, the biggest change proposed in REV is the creation of distributed system platform providers (“DSP”) to manage electricity flows on the grid, sitting between the wholesale market, retailers, third-party providers and customers. Traditional utilities—at least initially—will fulfill the role of the DSP, but plenty of questions remain, especially around data and customer management, rate and market structure, incentives, and cost.

The public service staff did acknowledge RIIO in the original REV scoping document.¹³⁸ Staff favorably noted the extended eight-year term, a focus on outcomes, and the totex approach.¹³⁹ However, they expressed doubt about implementing much of RIIO due to potential issues with

134. REFORMING THE ENERGY VISION, N.Y. STATE DEP’T OF PUB. SERV. No. 14-M-0101, at 51-52 (2014).

135. Paulos, *supra* note 131, at 62.

136. In discussing REV with the public, staff starts with the mission of providing affordable, safe, secure and reliable access across utility sectors while protecting the environment. Focusing on the customer experience, staff acknowledges electricity and information currently flows in one direction only, from the utility to the consumer, with information only on a monthly basis, and with electricity provided on aging infrastructure. With increasing bills, customers are worried about affordability, reliability and resiliency, while the current regulatory framework produces disincentives around innovation and the development of new technologies. Staff stresses that new technology will provide customer opportunities in distributed generation, reducing the need for infrastructure investment, will improve efficiency, and enable a new marketplace for consumer options. While referencing the proposed market structure, the materials focus on enabling customer participation and that customers will get paid as electricity producers. *Reforming the Energy Vision: What it Means to Energy Consumers*, N.Y. STATE DEP’T OF PUB. SERV. (2015), [http://www3.dps.ny.gov/W/PSCWeb.nsf/96f0fec0b45a3c6485257688006a701a/26be8a93967e604785257cc40066b91a/\\$FILE/88708408.pdf/NEW%20REV%20FEB%202015.pdf](http://www3.dps.ny.gov/W/PSCWeb.nsf/96f0fec0b45a3c6485257688006a701a/26be8a93967e604785257cc40066b91a/$FILE/88708408.pdf/NEW%20REV%20FEB%202015.pdf).

137. Paulos, *supra* note 131, at 62.

138. REFORMING THE ENERGY VISION, *supra* note 134, at 54-56.

139. *Id.* at 55.

benchmarking and the belief that that benchmarking would be necessary to implement RIIO's ratemaking structure.¹⁴⁰ However, the difference between rural, upstate New York and Manhattan is similar to the difference between rural Scotland and central London. Public staff did not comment on proportionality.

Those responding to the public staff document, however, were more complementary, noting that REV should "reward results, not utility spending."¹⁴¹ At least some of these comments seem to have swayed public staff; the white paper on ratemaking and utility business models was much more favorable toward concepts included in RIIO than would have been expected from previous documents.

Public staff acknowledged that "[u]tilities' earnings are heavily dependent on their capital expenditures," and that integrating increasing levels of renewables may require increases in operating expenses and decreases in capital expenses.¹⁴² As decreasing capital expenses will decrease the asset rate base, leading to longer-term lower returns, there are currently financial incentives for the utility to maintain capital spending.¹⁴³ Public staff recognized that "[t]he conventional rate treatment of utility capital and expenses is in conflict with a reformed energy vision" and that "any structural financial incentive embedded in regulation for a utility to favor its own capital spending" must be eliminated.¹⁴⁴

While public staff recognized that the "totex" approach had been employed by RIIO to "make the utility somewhat indifferent to the type of expenditure," and noting that REV shared the same goal, public staff dismissed the totex approach

140. *Id.* at 55-56.

141. Email from Elizabeth B. Stein, Environmental Defense Fund, to Honorable Kathleen H. Burgess (July 18, 2014) (<http://blogs.edf.org/energy-exchange/files/2014/07/EDF-Track-2-REV-Comments.pdf>) (Re: Comments on Case 14-M-0101 – Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision).

142. STAFF WHITE PAPER ON RATEMAKING AND UTILITY BUSINESS MODELS, *supra* note 30, at 3. "Unlike competitive companies whose long-term increase in profitability is driven by growing revenues and controlling costs, utilities' earnings are largely a function of increasing investment and controlling short-term expenses." *Id.* at 22.

143. *Id.* at 39 ("Thus, utilities have inherent interests in growing rate base through capital expenditures.").

144. *Id.* at 23.

as too complicated for accounting reasons and requested that stakeholders suggest other approaches that could be used.¹⁴⁵ However, rather than invent something new, it seems that the totex approach does meet the goal of limiting the amount of capital added into the rate base and could still be used. Using totex, it is possible that the amount of capital included in a rate base would be different from the amount of capital included on a GAAP balance sheet. However, as the amount included in the rate base is not a public financial statement, the amount of capital in each would not need to be reconciled. Having two standards would result in a higher administrative burden, but certainly seems possible to meet an objective which public staff has not found another way to achieve.

Public staff also recommended that more performance- or output-based metrics be included in rate cases,¹⁴⁶ “such that utility earnings are based on performance and achievement of outcomes rather than almost entirely on capital spending.”¹⁴⁷ They are seen “as an opportunity to increase earnings without adding to base rates.”¹⁴⁸ However, for three of the initial five “earnings impact mechanisms” (“EIMs”), the recommendation is to only allow for positive incentives, allowing these to be mechanisms only to increase utility revenues.¹⁴⁹

Like RIIO, the public staff also recommends standardized metrics, with the “method of measuring performance . . . uniform across utilities.”¹⁵⁰ Much longer than the current list that would affect earnings,¹⁵¹ these “should be used for

145. *Id.* at 43-44.

146. “New approaches that are tied to successfully driving desired outcomes, including greater use of performance incentives, should be initiated and applied to a range of policy objectives built around market, customer, and environmental goals.” *Id.* at 9.

147. *Id.* at 29.

148. *Id.* at 31.

149. *Id.* at 54. The five proposed categories are peak reduction, energy efficiency, customer engagement and information access, affordability, and interconnection. *Id.* at 55-59. Public staff recommended that the EIMs for data access and interconnection have some potential negative adjustment, as these are mainly within the control of the utility. *Id.* at 61.

150. *Id.* at 60.

151. The list includes: system utilization and efficiency; DG, energy efficiency, and dynamic load management (DLM) penetration; opt-in time-of-use rate efficacy; market development; MBE use; carbon reduction; customer satisfaction; customer enhancement; and conversion of fossil-fueled end uses. *Id.* at 64-66.

planning, transparency, and accountability,”¹⁵² but will have no direct impact on revenues. Thus, RIIO’s concept of benchmarking does appear like it will be adopted, at least in some form.

RIIO’s process—and with it, proportionate assessment and longer rate cases—was clear in its goals of providing regulatory certainty and the ability of network companies to focus on the business. The public staff recommendations seem to suggest similar goals,¹⁵³ but have provided none of the regulatory clarity or certainty necessary to achieve these objectives. For example, the public staff has recommended that the standard rate case be maintained at three years, but with the potential for that to be extended for an additional two for “high-performing utilities.”¹⁵⁴ Additionally, the public staff recommends that “[m]any EIMs should be established on a multi-year basis,”¹⁵⁵ as occurs in RIIO for outputs. However, the public staff process, as explained, provides none of the “stability and predictability” they say they want: rate cases are set for the same maximum duration as currently, and rate plans are subject to being reopened.¹⁵⁶ While reopening is possible in RIIO, the conditions which would allow reopening are specified during the price control review. REV does not seem to be so prescriptive, allowing for unnecessary uncertainty. Proportionate assessment may occur in that “high-performing utilities” which meet outcomes will be able to extend a rate case to five years; however, this does not impact the original or subsequent rate cases or how EIMs are set. REV could do more to ensure stability and regulatory certainty than is currently proposed.

The only place where the public staff seems to contemplate decreased revenue is in potential changes to the current earnings sharing mechanisms (“ESM”). The ESMs allow the utility to retain earnings above the baseline return on equity

152. *Id.* at 29.

153. “Utilities, customers and market participants will benefit from the stability and predictability of a multi-year plan as REV markets are developed. . . . Utilities will be better able to focus on developing DSP capabilities and [sic] if they are not diverted into time-consuming and contentious rate proceedings.” *Id.* at 70.

154. *Id.* at 70-71.

155. *Id.* at 60.

156. *Id.* at 72.

and return part of that to its shareholders with the remainder going to customers. However, even with the changes contemplated, a utility with inferior outcomes would still receive the baseline ROE level. The shareholders sharing additional revenues with customers would only start at that baseline level. This is less draconian—and, therefore, less of a disincentive for poor performance—than RIIO’s potential of return dropping below the actual cost of debt.

VI. Conclusion

Regulatory reform is happening and will continue, potentially more quickly, especially with new federal rules like the Clean Power Plan. New York’s REV process seems to be taking some direction from RIIO, but could do more to meet enumerated goals. Rather than reinvent pieces – especially on the process side – to meet objectives, New York and other states have the ability to move forward more quickly with reforms. Analyzing regulatory frameworks from other jurisdictions will enable them to do just that.

While each of the states continues to find its own way, one option to instill performance-based regulation nationally is for federal policy to make it a priority. This could also ensure that environmental goals—being implemented with performance-based metrics in the U.K. and potentially in New York—are addressed in energy regulation, something currently haphazard at best.¹⁵⁷ Requiring environmental goals to be met as outputs, with earnings tied to them, should become part a larger part of the regulatory landscape in the United States. RIIO has shown a viable path forward for that to occur more quickly than starting from scratch.

157. See Victor B. Flatt & Heather Payne, *Not One Without the Other: The Challenge of Integrating U.S. Environment, Energy, Climate and Economic Policy*, 44 LEWIS & CLARK L. REV. 1079 (2014).