Guarini Center
Environmental, Energy, and Land Use Law
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Policy Brief
March 2015

Toward policy-responsive performance-based regulation in New York State

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This is the first in a two-part policy brief series that recommends performance-based regulation (PBR) reforms to address the multifaceted policy objectives of New York's "Reforming the Energy Vision (REV)" proceeding. This brief focuses on the possible compositions of utility revenues under PBR, which vary based on the approach used to set base revenue allowances and the magnitude of financial adjustments that result from performance incentives. Variations in these components define a set of possible PBR regimes New York can choose between, which differ in terms of policy-responsiveness, economic efficiency, and feasibility. A subsequent policy brief proposes a performance incentive framework to address the ambitious REV policy agenda.

Introduction

New York's "Reforming the Energy Vision (REV)" proceeding[2] seeks to steer the state's electric distribution systems toward a diverse set of public policy objectives. Whereas electric utility regulators have traditionally confined their objectives to ensuring reliable delivery of electricity at reasonable prices, REV expands this remit by aiming to create a more efficient, customer-centric, and environmentally sustainable electricity system.[3] To this end, the New York State Public Service Commission (PSC) proposes to align utilities' profit opportunities with their performance in achieving REV's policy objectives by expanding its use of performance-based regulation (PBR).

Under PBR, utility revenue is a function of (1) a *base revenue allowance*, which governs the recovery of utility costs, and (2) financial rewards and/or penalties from *performance incentives*, which reflect the level of service delivery across the dimensions designated by regulators. As such, PBR enables regulators to link utility revenues to the fulfilment of desired outcomes targeted by REV, such as improved system-wide efficiency, enhanced customer engagement, and reduced greenhouse gas emissions.

While the PSC has some experience using performance incentives, it has yet to embrace the sort of far-reaching PBR reforms introduced elsewhere, which is likely to hinder the its ability to satisfy REV's ambitious goals.[4] In particular, the set of incentives the PSC currently administers is too narrow to fulfill the diverse objectives REV sets forth.[5] Moreover, the PSC's practice of setting base revenue allowances according to past utility costs limits its ability to encourage efficient expenditure and to emphasize performance incentives.

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

[3] *See* Case 14-M-0101: Proceeding on motion of the Commission in regard to Reforming the Energy Vision, Developing the REV market in New York: DPS staff straw proposal on Track One issues at 1 (N.Y. Pub. Serv. Comm'n, Aug. 22, 2014).

[4] *See* Danielle Spiegel-Feld & Benjamin Mandel, *Reforming electricity regulation in New York State: Lessons from the United Kingdom* (Roundtable report), New York University School of Law at 5 (2015). *Available at* http://guarinicenter.org/reforming-electricity-regulation-in-new-york-state-lessons-from-the-united-kingdom/.

[5] Explicit performance incentives are currently available for customer service, service reliability, gas safety, and energy efficiency.

This brief evaluates New York's options for implementing a PBR regime that can better advance the REV agenda. Section 1 presents a framework for identifying the variants of PBR that New York can choose between and suggests criteria by which to evaluate these alternatives. Section 2 details and classifies the current regulatory regime in New York as well as the options for PBR reform, and appraises them according to the criteria presented in Section 1. Section 3 concludes by arguing that in order to achieve its full range of policy objectives in a cost-effective manner, New York must both broaden its suite of performance incentives and embrace forward-looking cost benchmarking to set leaner base revenue allowances.

1. Variants of PBR

The two primary components of utility revenue under PBR are the base revenue allowance set by regulators and earnings adjustments based on performance incentive targets. The base revenue allowance is a sum approved by regulators in order to cover and provide a return on prudent costs incurred to provide electric service. As discussed in more detail below, the methodology used to determine the base revenue allowance influences the extent to which regulations incentivize utilities to economize costs.[6] Under PBR, the revenue allowance can be augmented or diminished according to a utility's performance relative to targets of financial performance incentives for non-cost dimensions of performance.

The most direct means of creating a more policy-responsive regime is to specify a broader set of performance incentives that line up with current policy priorities. Through the use of financial incentives, PBR encourages utilities to deliver desired performance by offering equal or greater upside potential than under traditional regulation; at the same time, the possibility of diminished returns for inferior performance increases the uncertainty of returns under PBR and shifts risk from customers to utilities.[7] In recent decades, performance incentives have been introduced widely[8] to mitigate undesired consequences of efforts to improve the economic efficiency of utilities (namely service quality erosion[9] and disincentives for energy efficiency[10]). Traditionally, these narrow incentives (which tend to address customer satisfaction in addition to reliability and energy efficiency) have played only a peripheral role as a supplementary component of a regulatory mechanism designed to address predominantly economic concerns. However, the improved commercial prospects of distributed energy resource (DER) technologies[11] and mounting concerns about climate change are encouraging regulators to deploy broader performance incentives that are directed at environmental performance, social engagement, and resilience.[12]

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[6] *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 an overview of various techniques used to set base revenue.

[7] *See* Sonia Aggarwal & Edward Burgess, *Performance-based models to address utility challenges*, 27 ELECTR. J. 48, at 50 (2014) and Graeme Guthrie, *Regulating infrastructure: The impact on risk and investment*, 44 J. ECON. LIT. 925 (2006)

[8] As of 2007, 37 states included reliability standards for electric utilities and 20 states enforced these standards with reward/penalty mechanisms. *See* Pacific Economics Group (PEG), *Service quality regulation for Detroit Edison: A critical assessment* at 57 (2007). *Available at* https://efile.mpsc.state.mi.us/efile/docs/15244/0024.pdf. As of 2013, performance incentives for energy efficiency were in place in 28 states, and pending in three others. *See* Innovation Electricity Efficiency (IEE), *State electric efficiency regulatory frameworks* at 1 (2013). *Available at* http://www.edisonfoundation.net/iee/Documents/IEE_StateRegulatoryFrame_0713.pdf

[9] *See, e.g.,* Virendra Ajodhia & Rudi Hakvoort, *Economic regulation of quality in electricity distribution networks*, 13 UTIL. POL. 211 (2005) and Anna Ter-Martirosyan & John Kwoka, *Incentive regulation, service quality, and standards in U.S. electricity distribution*, 38 J. REGUL. ECON. 258 (2010).

[10] *See, e.g.,* National Association of Regulatory Utility Commissioners (NARUC), *Performance-based regulation in a restructured electric industry* at 52 (1997).

[11] DER encompasses energy efficiency, demand response, clean distributed generation, and energy storage. *See* DPS staff report and proposal at 12 (N.Y. Pub. Serv. Comm'n, Apr. 24, 2014).

[12] *See, e.g.,* Sonia Aggarwal & Hal Harvey, *Rethinking policy to deliver a clean energy future*, 26 ELECTR. J. 7 (2013).

The approach used to set base revenue allowances can influence both the cost-effectiveness and policy-responsiveness of a PBR regime. Regulators have traditionally set base revenue allowances according to the utility-reported past costs of service (often in a "test year") to assure a sufficient rate of return to investor-owned utilities—a convention called "cost-of-service regulation (COSR)." As economic efficiency became a central priority of electric industry restructuring movements worldwide in the 1980s and 1990s, regulators in some jurisdictions tried to impose competitive discipline by adopting price or revenue "caps" that compensated only projected efficient future expenditure, as determined through benchmarking of a utility's costs against those of other electric utilities (either within or across jurisdictions).[13] These benchmarked caps tend to result in leaner allowances than those under COSR but are also typically in place for longer intervals, which provides more time between rate adjustments for utilities to retain cost savings below cap levels.[14] Benchmarked revenue allowances can also indirectly make utilities more policy-responsive; all else equal, leaner base revenue allowances allow performance incentives to constitute a relatively larger share of revenue potential, which should encourage utility managers to pay proportionately more attention to them.[15]

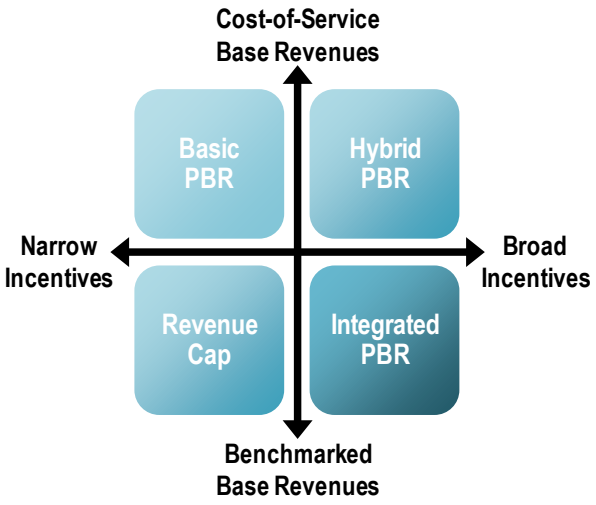

Figure 1. *Variations in the range of performance incentives and the approach used to set base revenue allowances define four PBR variants*

Considering potential variations in both the range of performance incentives and the approach used to set base revenue allowances, a PBR regime can assume one of four forms (see Figure 1):

- **Basic PBR** – narrow performance incentives and cost-of-service base revenue allowances;
- **Revenue Cap** – narrow performance incentives and benchmarked base revenue allowances;
- **Hybrid PBR** – broad performance incentives and cost-of-service base revenue allowances; and
- **Integrated PBR** – broad performance incentives and benchmarked base revenue allowances.

From the discussion above, it is clear that these options differ in terms of policy-responsiveness, which I define as the power to address REV's diverse policy objectives, including improved system-wide efficiency, enhanced customer engagement, and reduced greenhouse gas emissions.[16] But in light of the massive capital

[13] *See* Tooraj Jamasb & Michael Pollitt, *International benchmarking and regulation: An application to European electricity distribution utilities*, 31 ENERGY POL. 1609 (2003) for a survey of benchmarking techniques used by electric utilities throughout the world to estimate "efficiency frontiers" using parametric statistical methods like corrected ordinary least squares (COLS) regression and stochastic frontier analysis (SFA), or to calculate them using non-parametric methods such as data envelope analysis (DEA).

[14] *See, e.g.,* Paul L. Joskow & Richard Schmalensee, *Incentive regulation for electric utilities*, 4 YALE J. ON REGUL. 1 (1986) and Ingo Vogelsang, *Incentive regulation and competition in public utility markets: a 20-year perspective*, 22 J. REGUL. ECON. 5 (2002).

[15] For example, much has been written about the so-called "Averch-Johnson effect," whereby utility management favors a production mix that disproportionately favors capital inputs under the traditional cost-of-service regulation framework, in which the value of the capital asset base determines profits. *See, e.g.,* Harvey Averch & Leland L. Johnson, *Behavior of the firm under regulatory constraint*, 52 AM. ECON. REV. 1052 (1962). In the current discussion, this notion indicates that utility managers are likely to favor strategies, such as those encouraged through performance incentives, in proportion to how effectively they can drive revenue.

[16] Policy-responsiveness can also be influenced by the length of rate plans and the use of earnings sharing mechanisms, innovation funding, and uncertainty mechanisms, among other features omitted from this discussion.

investments needed to maintain and upgrade electricity systems—the PSC estimates $30 billion in capital investment will be needed over the next decade to replace aging electric infrastructure in New York State[17]—regulators must also appraise the cost-effectiveness of reform by factoring in the expected economic efficiency of these options. Finally, regulators are likely to weigh the legal and administrative feasibility of any reform option when deciding whether to abandon the *status quo*.

Section 2 evaluates the benefits and drawbacks of each PBR option primarily in terms of policy-responsiveness, and then considers economic efficiency and feasibility.

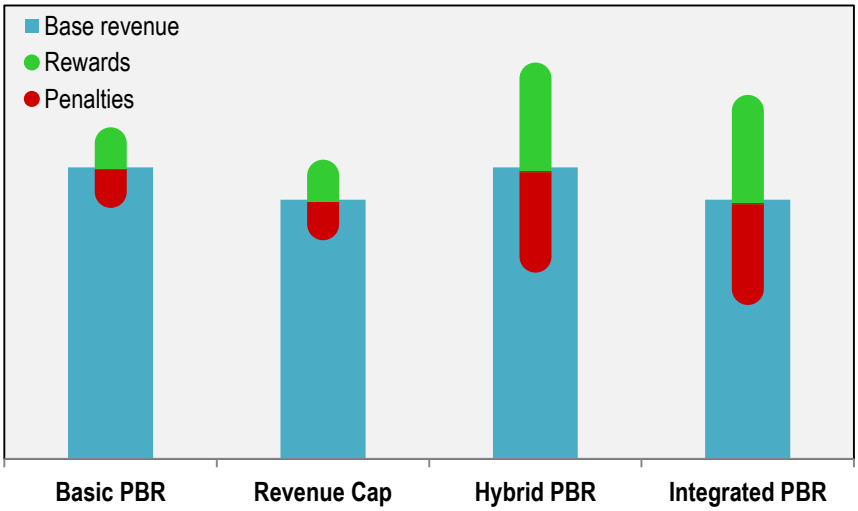

Figure 2. *A stylized representation of potential revenue composition under each PBR option. In general, base revenue allowances are likely to be more generous in the variants that rely on utility-reported past costs of service (Basic PBR, Hybrid PBR) than in those that use benchmarking to compensate only projections of efficient future expenditure (Revenue Cap, Integrated PBR). The magnitude of available rewards/penalties is likely to be greater in the variants that deploy broader sets of incentives that address social and environmental priorities (Hybrid PBR, Integrated PBR) than in those that use narrower sets of incentives (Basic PBR, Revenue Cap).*

2. PBR options for New York State

2.A. *Status quo:* Basic PBR

Policy-responsiveness	Economic efficiency	Feasibility
◐	◐	●

● = best
○ = worst

One option for the PSC is to maintain the *status quo*. Like most states, New York employs a cost-of-service approach to set base revenue allowances as a function of retrospective utility costs. Unlike the classic variant that uses strictly historical costs, however, the PSC uses a "future test year" convention that forecasts revenues and expenses in the proceeding period based on those in the prior periods.[18] Though nominally forward-looking, the forecasts in this approach still rely upon past costs as a crucial input and the PSC has eschewed benchmarking as a way to normalize these costs. The *status quo* therefore tacitly assumes that recent costs were prudent and, as a consequence, is likely to set more generous allowances than one that benchmarks them against objective measures of efficiency.

[17] *See* DPS staff report and proposal at 6 (N.Y. Pub. Serv. Comm'n, Apr. 24, 2014).

[18] Per conversations with PSC staff, the PSC uses a future test year to improve the likelihood that utilities can recover full future costs.

Notably, New York's *status quo* features several performance-based elements. One such feature is New York's use of a three-year rate plan convention, instead of the one-year plans that were once the norm.[19] This multi-year term provides a greater opportunity for utilities to retain cost savings, relative to annual adjustments. However, the three-year convention still fails to match the cost-economizing strength of programs with five- or eight-year rate plans, such as programs that British regulators have employed in recent decades (see next section). Perhaps the most prominent performance-based feature of New York's current regime is the use of explicit financial performance incentives for customer service, service reliability, and energy efficiency, which have each been in place for at least the last decade.[20] These incentives combine for earnings exposure ranging from negative adjustments up to 2.63% and positive adjustments up to 0.45%.[21] However, these performance incentives reactively compensate for weaknesses of economic regulation, namely its potential for service quality erosion and incompatibility with energy efficiency, rather than proactively addressing broader objectives.

The features of New York's incumbent regime meet the description of "Basic PBR," which limits its ability to achieve REV's suite of policy objectives. Under Basic PBR, performance incentives account for only a small share of expected revenue potential (see stylized example shown in Figure 2[22]), meaning the few performance incentives that are offered provide relatively little financial motivation. Instead, because revenue potential is predominantly driven by base revenue allowances, which in turn are a function of the historically based anticipated cost of inputs, Basic PBR is at odds with investments that improve system-wide efficiency[23]; that is, the composition of potential utility revenues under Basic PBR encourages utilities to favor expensive business-as-usual upstream investments, like substation replacements, rather than downstream alternatives that provide diverse benefits at lower long-term cost, like demand management programs.[24] This leaves room for improvement in terms of economic efficiency—Figure 2 shows that total revenues are likely to be higher under Basic PBR than under Revenue Cap regulation—and leaves rates elevated as a result. However, given that the current regime has operated for most of the last decade, Basic PBR scores well on feasibility grounds.

2.B. Integrated PBR

Policy-responsiveness	Economic efficiency	Feasibility
●	◐	○

● = best
○ = worst

At the opposite end of the spectrum from Basic PBR is Integrated PBR, which features both a broadened set of performance incentives and base revenue allowances that are set using benchmarking. An illuminating example of this most comprehensive PBR variant is Great Britain's "Revenue = Incentives + Innovation + Outputs (RIIO)" model. RIIO was introduced by British energy regulators in late 2010 to succeed the more conventional revenue cap system known as "RPI-X" that had been in place since the industry's privatization

[19] As gathered through personal communication with PSC staff, five-year rate plans were tested in the 1990s but parties felt this provided insufficient contact between utilities and the regulator. The PSC has since shifted to a three-year rate plan convention to provide more frequent oversight of utilities by the PSC.

[20] Other performance-based features of New York's prevailing regime that are not discussed here include revenue decoupling mechanisms to protect utilities from lost revenues attributable to reductions in end-use demand and earnings sharing mechanisms to shield customers from the risk of windfall utility profits.

[21] *See* DPS staff report and proposal at 48 (N.Y. Pub. Serv. Comm'n, Apr. 24, 2014).

[22] The characterization of Basic PBR in the example shown in Figure 2 is not a precise reflection of New York's current practice, but rather intends to generalize the features of this approach to revenue-setting.

[23] *See* DPS staff report and proposal at 9 (N.Y. Pub. Serv. Comm'n, Apr. 24, 2014).

[24] *See, e.g.,* Rahmatallah Poudineh & Tooraj Jamasb, *Distributed generation, storage, demand response and energy efficiency as alternatives to grid capacity enhancement*, 67 ENERGY POL. 222 (2014).

in 1991.[25] RIIO was devised to foster greater innovation and investment throughout the industry in light of new climate policy demands and aging infrastructure.[26]

The defining feature of RIIO is its focus on outputs across six categories—customer satisfaction, safety, reliability, conditions for connection, environmental impact, and social obligations. RIIO encourages utilities to pursue many of these outputs by offering explicit financial performance incentives that contribute a substantially larger impact on total revenues than in past regimes; for the distribution price controls that will go into effect in April 2015, financial incentives introduce revenue variations of ±5% around a base revenue target return of 6%.[27]

Under RIIO, base revenue allowances are set in largely the same way as under RPI-X. Under RIIO, regulators use statistical benchmarking to project efficient levels of total expenditure ("totex") over the duration of the rate plan (extended from five years to eight) and calibrate base revenue allowances to this efficient-cost basis. Throughout the rate plan, total revenues are permitted to deviate from base revenue allowances according to changes in external cost drivers (namely inflation) and financial rewards or penalties earned through performance incentives.[28] In the first year of RIIO's transmission price controls, companies generally outperformed annual targets and will thus earn returns in excess of base revenue allowances.[29]

The combination of an expanded set of performance incentives with benchmarked revenue caps enables Integrated PBR to be the most policy-responsive PBR variant. Its use enables regulators to specify targets for both traditional priorities (e.g., service reliability) and more progressive dimensions of interest (e.g., customer engagement and environmental performance). Moreover, Integrated PBR subjects the greatest share of revenue potential to the satisfaction of targeted performance incentives (compare the sizes of reward-penalty bands relative to those of base revenue bars in Figure 2), which can reorient utilities toward the achievement of outcomes that are targeted through performance incentives.

In addition, the use of benchmarking to set base revenue allowances should suppress base revenue allowances and thereby improve economic efficiency relative to *status quo*. Integrated PBR would therefore enhance the cost-effectiveness of the REV transition by encouraging utilities to identify the least-cost options over the planning horizon rather than minimizing costs during a short-term rate plan; RIIO's use of totex benchmarking is considered a crucial component of Britain's campaign to meet its own formidable investment demands.[30]

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[25] *See* Office of Gas and Electricity Markets (U.K.) (Ofgem), *RIIO: A new way to regulate energy networks. Final decision.* (2010). *Available at* https://www.ofgem.gov.uk/ofgem-publications/51870/decision-doc.pdf.

[26] For a high-level overview of the RIIO model, *see* Benjamin Mandel, *A primer on utility regulation in the United Kingdom: Origins, aims, and mechanics of the RIIO model* (Issue brief), New York University School of Law (2014). *Available at* http://guarinicenter.org/a-primer-on-utility-regulation-in-the-united-kingdom/.

[27] *See* Office of Gas and Electricity Markets (U.K.) (Ofgem), *RIIO-ED1: Final determinations for the slow-track electricity distribution companies* at 46 (2014).

[28] *See* Office of Gas and Electricity Markets (U.K.) (Ofgem), *Handbook for implementing the RIIO model* at 29 (2010). *Available at* https://www.ofgem.gov.uk/ofgem-publications/51871/riiohandbook.pdf.

[29] *See* Spiegel-Feld & Mandel (2015) at 13. *See also* https://www.ofgem.gov.uk/network-regulation-%E2%80%93-riio-model/network-performance-under-riio/riio-t1-performance-data for more detailed performance data from RIIO's first transmission price controls.

[30] *See, e.g.,* Spiegel-Feld & Mandel (2015) at 5.

Notably, however, while targeted performance incentives are intended to deliver more holistic value to customers,[31] their potential for increased extraction of revenue from ratepayers when utilities meet targets limits the economic efficiency of Integrated PBR. To this point, comparing total revenue potentials in Figure 2 shows that performance rewards can make Integrated PBR more expensive than Revenue Cap regulation or even Basic PBR. Nevertheless, this greater upside potential under Integrated PBR should motivate utilities to deliver multifaceted performance that confers more value per dollar of revenue than any other alternative.

Integrated PBR would be the most challenging type of PBR for New York to implement. One reason is that the process of specifying performance incentives—namely, setting reasonable targets and calibrating financial terms—introduces nontrivial administrative burdens. Utility cost benchmarking poses another potential obstacle to overcome; the PSC experimented with benchmarking prior to restructuring, but those trials were not believed to account satisfactorily for significant demographic disparities between upstate and downstate service territories.[32] The PSC has not revisited benchmarking for distribution utilities since restructuring, opting for periodic management audits instead.[33] It is also worth noting that whereas RIIO follows in a tradition of revenue cap regulation that likely eased Britain's transition to Integrated PBR, New York has not established a similarly credible legacy for revenue cap regulation and may find comprehensive PBR reforms more difficult.[34]

The PSC would also need to be mindful of certain legal obstacles if it opted to implement an Integrated PBR program in New York. For one, the New York Public Service Law limits rate plans to a maximum of four years,[35] which could prevent the PSC from extending the length of rate plans, which is considered a critical complement to benchmarking. Furthermore, utilities may have the right—as has been asserted—to file rate cases on an annual basis if "circumstances so warrant,"[36] which could further undermine a unilateral approach by the PSC. Even so, the implementation of longer rate plans in recent years through bilateral negotiated settlements, such as the ten-year plan that accompanied the merger of Niagara Mohawk Power Corporation with National Grid USA in 2002, suggests that these legal considerations can be navigated.

2.C. Revenue Cap Regulation

Policy-responsiveness	Economic efficiency	Feasibility
○	●	◐

● = best
○ = worst

There are two intermediate options between Basic PBR and Integrated PBR for the PSC to consider. Each entails modifying just one component of potential utility revenue, as opposed to reforming both components as under Integrated PBR. Revenue Cap regulation combines a limited set of performance incentives with a more rigorous benchmarking approach to setting base revenue allowances. This is essentially what Britain employed prior to the introduction of RIIO. But while RPI-X may have eased Britain's transition to

[31] Great Britain's Office of Gas and Electricity Markets convened an extensive stakeholder process to inform its selection of output areas for performance measures. *See* Frontier Economics, *RPI-X@20: Output measures in the future regulatory framework* (2010). *Available at* https://www.ofgem.gov.uk/ofgem-publications/52022/rpt-outputs.pdf.

[32] *See* NARUC (1997) at 22-25.

[33] N.Y. Pub. Serv. Law §66(19a).

[34] *See, e.g.,* Spiegel-Feld & Mandel (2015) at 5.

[35] N.Y. Pub. Serv. Law §66(16).

[36] Rochester Gas and Electric Corporation asserted this right, pursuant to N.Y. Pub. Serv. Law §66(12b). *See* Case 02-E-0198: Proceeding on motion of the Commission as to the rates, charges, rules and regulations of Rochester Gas and Electric Corporation for electric service, Notice of schedule for filing exceptions at 88 (N.Y. Pub. Serv. Comm'n, Dec. 17, 2002).

Integrated PBR, it was geared toward predominantly economic goals. A similar regime in New York's current position may not do enough to address prevailing policy priorities.

Revenue Cap reform would likely be the best option in terms of economic efficiency and result in the lowest rates by most effectively suppressing utility costs. However, it is unlikely to direct utilities to deliver policy-responsive outputs. Implementing revenue caps with limited performance incentives will steer utilities toward least-cost "business-as-usual" practices, without safeguards to assure sufficient reliability, environmental performance, customer engagement, or resilience.[37] As shown in Figure 2, Revenue Cap regulation subjects only a small share of revenue potential to performance incentives. But to the extent that meeting policy demands can entail considerable expense, pure revenue caps are likely to be less policy-responsive than even Basic PBR, under which a bias toward expensive capital investments may actually provide some incentive for investment in solutions that deliver long-term value at the expense of short-term rate increases.[38]

In terms of feasibility, Revenue Cap regulation would confront the same administrative difficulties surrounding benchmarking and legal barriers on rate plan length that were discussed for Integrated PBR.

2.D. Hybrid PBR

Policy-responsiveness	Economic efficiency	Feasibility
◐	○	◐

● = best
○ = worst

Hybrid PBR is effectively the inverse of revenue cap regulation, combining an expanded set of performance incentives with a cost-of-service base revenue allowance mechanism. Hybrid PBR is a more straightforward method for the PSC to address the multifaceted set of REV objectives than Integrated PBR, but sacrifices some of its policy-responsiveness and most of its economic efficiency.

While Hybrid PBR features a comprehensive suite of performance incentives, the power of these incentives is diminished relative to Integrated PBR. Because a cost-of-service approach should result in more generous base revenue allowances than one that features benchmarking, Hybrid PBR exposes a smaller share of total revenue potential to the achievement of performance incentives than does Integrated PBR (compare the sizes of reward-penalty bands relative to base revenue bars in Figure 2). However, by virtue of the magnitude of available performance incentives, Hybrid PBR should still foster greater policy-responsiveness than either Basic PBR or Revenue Cap regulation.

Because Hybrid PBR increases available revenue in the form of performance incentives but does not tamp down base revenue allowances, it is likely to provide the greatest expected returns for utilities and thus the worst economic efficiency. Hybrid PBR is likely to encourage inefficiently costly investments by utilities while funding performance incentives through future rates, placing the highest demand on rates of any PBR option.

As under Integrated PBR, Hybrid PBR would require regulators to identify reasonable performance targets and calibrate appropriate financial terms for incentives.

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[37] For an example of the inverse relationship between cost-efficiency and service quality for electric distribution utilities in the U.K., *see* Dimitrios Giannakis et al., *Benchmarking and incentive regulation of quality of service: an application to the UK electricity distribution networks*, 33 ENERGY POL. 2256 (2005).

[38] *See* Benjamin H. Mandel, *Performance-based regulation to improve upstream energy efficiency*, 27 ELECTR. J. 20, at 23 (2014)

3. Conclusion

Table 1. *Assessment scorecard for potential PBR regimes*

	Policy-responsiveness	Economic efficiency	Feasibility
Basic PBR	◐	◐	●
Revenue Cap	○	●	◐
Hybrid PBR	◑	○	◑
Integrated PBR	●	◑	○

● = best
○ = worst

To the extent that REV has been motivated by ambitious and diverse policy goals, New York should implement Integrated PBR to best serve this agenda.

The above assessments (condensed and presented in Table 1 above) suggest that in order to improve its policy-responsiveness, the PSC must advance its use of PBR by, at a minimum, broadening its use of performance incentives to target noneconomic outcomes.[39] This suggests that the PSC should move toward either Integrated PBR or Hybrid PBR, both of which feature a broad array of performance incentives through which the PSC can address REV goals. However, Integrated PBR not only offers the best prospects for policy-responsive regulation, but can also contain the cost of fulfilling REV's ambitious goals by encouraging greater economic efficiency than would be expected under either the *status quo* Basic PBR regime or a Hybrid PBR regime. As is already evident in Great Britain, regulators can use Integrated PBR to effectively engage utilities in the implementation of a broad policy agenda by linking more of their revenue potential than ever before to the achievement of policy-driven outcomes. And by using benchmarking to encourage cost economization, Integrated PBR can empower New York's utilities to identify innovative solutions to deliver the diverse performance attributes of electric provision at reasonable prices.

While Integrated PBR presents nontrivial administrative hurdles, the PSC can implement PBR reforms incrementally while it works through these feasibility concerns.[40] In practical terms, this could mean starting with a Hybrid PBR approach to expand the available performance incentives in its next round of rate cases while PSC staff works to craft an appropriate benchmarking technique that it can eventually apply across all New York utilities. Then in a later round of rate cases, the PSC can complement broader performance incentives with a benchmarked base revenue approach to inaugurate an Integrated PBR regime.

Acknowledgments
Benjamin Mandel is Energy Law & Policy Fellow of the Frank J. Guarini Center on Environmental, Energy and Land Use Law at New York University School of Law. He is grateful to Xiaoye Wang for excellent research assistance, and to Jonathan Schrag, Danielle Spiegel-Feld, Richard Stewart, Katrina Wyman, and New York State Department of Public Service staff for helpful comments and feedback.

[39] To that end, a companion Guarini Center report will present recommendations for the PSC's specification of performance incentives to align utilities' profits with their delivery of diverse outputs.

[40] This recommendation is consistent with the consensus opinion of participants in a roundtable discussion on the applicability of RIIO to New York State. *See* Spiegel-Feld & Mandel (2015) at 12.