Advanced Energy Economy

Michigan Public Service Commission

Study of Performance Based Regulation

Per PA 341 of 2016, Sec. 6u

Table of Contents

Executive summary

In compliance with Sec. 6u of Act 341 of 2016, the MPSC herby submits its report to the Michigan Legislature and the Governor regarding its review of performance-based regulation (PBR) systems and potential applicability to Michigan.

Michigan's utility regulatory-structure, developed over nearly a century, has historically worked well due to continual adjustments to the core cost of service [cost-plus-return] approach that characterizes the form of economic regulation used in Michigan. This has enabled regulated utilities to respond to a multi-decade expansion of demand for energy while adjusting to broad changes in the economy.

Today, Michigan is entering an unprecedented period of technological innovation that is markedly affecting both public utility infrastructure and the use of energy by consumers. As large capital investments are needed for the replacement of aging utility infrastructure, technological innovation provides an opportunity to re-think the composition of the future grid, rather than following a simple like-for-like replacement strategy. Accordingly, the direction from the Michigan Legislature and Governor to prepare this study was especially timely. Under traditional regulation, electric utilities operating under MPSC jurisdiction are evaluated in terms of providing safe, reliable and accessible energy service at reasonable rates. Through traditional cost-plus-return regulation, quality service is to be provided according to the performance requirements implicit in traditional utility regulation.

Michigan's existing electric energy system appears to be heading to a crossroads with its aging infrastructure, changes in technology, evolving customer preferences and competitive pressures. In light of these trends, the question is no longer whether power systems will be transformed, but rather how these transformations will occur.[1] Drivers of change include:

- Renewable Energy Cost Reductions
- Innovations in Data, Intelligence, and System Optimization
- Energy Security, Reliability, and Resilience Goals
- Evolving Customer Engagement
- Electricity Demand Forecasts
- Increased Interactions with Other Sectors, notably transportation
- Local and Global Environmental Concerns over Air Emissions
- Energy Access Imperatives

[1] Zinaman, O., et al. (2015). Power Systems of the Future: A 21st Century Power Partnership Thought Leadership Report. Retrieved from: http://www.nrel.gov/docs/fy15osti/62611.pdf.

Deleted: which

Deleted: , and

Commented [A1]: architecture??

Commented [A2]: universal?

Commented [A3]: I suggest moving this part to the beginning of the paragraph and rewording a bit, then end the paragraph with the notion that we are entering a new period. I think the point you are making is that as long as utilities meet their basic requirements to provide safe, reliable, universal service at reasonable rates, then they have the opportunity to earn their regulated rate of return. This is the basic compact MI has operated under for decades, as has the rest of country. This has encouraged build-out of the system to meet growng demand, but there are changes taking place that strongly suggest that this basic model may be reaching its limits.

Commented [A4]: Suggest changing bullets from Title Case to Sentence case.

Commented [A5]: Do you mean flat to declining load growth?

Commented [A6]: Not sure what this means

- Increasingly Diverse Participation in Power Markets
- Revenue and Investment Challenges

Traditional cost-of-service regulation allows the recovery of all prudently incurred costs plus a reasonable opportunity to earn a fair rate of return on all prudently incurred investments that remain used and useful.[2] Traditional cost-of-service regulation has included incentive mechanisms in the past in Michigan and other states. Perofrmance-Based Regulation (PBR) is a relatively new incentive based regulatory framework to connect goals, targets, and measures to utility performance, executive compensation, and investor returns. PBR mechanisms determine utility revenue based on specific performance metrics and other non-investment factors. PBR can include multi-year rate plans (MRPs), performance incentive mechanisms (PIMs), alternative rate mechanisms, and price caps, which are elaborated on more thoroughly in the body of this report.

PIMs, a component of PBR, adopt specific performance metrics, targets, and incentives to affect desired utility performance that represent the priorities of the jurisdiction. PIMs can be specific performance metrics, targets, or incentives that lead to an increment or decrement of revenues or earnings around an authorized rate of return to strengthen performance in target areas. PIMs are distinct from PBR in that they tend to focus on specific areas of utility performance, rather than a robust set of coordinated PBR mechanisms which feature a regulatory framework that uses coordinated incentives and disincentives to effect multiple aspects of utility performance.

Well-designed PBR provides incentives and disincentives based on utility performance, and has the potential to benefit consumers and utilities alike. PBR provides goals and metrics that enable utilities to forecast efficient total expenditures. Some elements of PBR, such as multi-year rate plans, increase the time between rate cases, which provides utilities with more opportunity to retain cost savings without the threat of imminent rate adjustments. However, multi-year rate plans require detailed policy objectives at the outset. PBR encourages utilities to make investments that have extended payback periods, which can shift the focus from a traditional one-year period to a longer horizon. PBR can also be designed to provide incentives and disincentives that help the utility focus on and improve customer satisfaction, safety, reliability, reduce negative environmental impacts and meet social obligations.

PBR should not necessarily be viewed as a mechanism to avoid increases in utility rates, since the expected level of new capital investment, even with the deployment of new technologies, will be significant over the coming years. PBR is best defined as a regulatory mechanism that uses incentives to guide innovation and cost efficiencies, which should provide utility management with added flexibility to choose among operational and capital investment options that can lead to

[2] The criteria for establishing a fair rate of return for public utilities is rooted in the language of the landmark United States Supreme Court cases Bluefield Waterworks & Improvement Co v Public Service Comm of West Virginia, 262 US 679; 43 S Ct 675; 67 L Ed 1176 (1923) and Federal Power Comm v Hope Natural Gas Co, 320 US 591; 64 S Ct 281; 88 L Ed 333 (1944).

Commented [A7]: Do you mean by a more diverse number and type of participants?

Commented [A8]: Given an example or two?

Commented [A9]: I think of PBR aas mainly impacting earnings, not revenue. They can include revenue caps.

Deleted: or

Deleted: e

Deleted: forms

Deleted: unique

Deleted: tool

Deleted: may

improved overall performance, greater efficiencies and customer benefits.

This report examines PBR systems implemented across the United States and other countries, reviews the United Kingdom's *RIIO* (Revenues = Incentives + Innovation + Outputs) rate setting framework, and concludes that RIIO could not be implemented in its totality in Michigan without significant cost and effort. However, there are valuable lessons that can be extracted from the study of PBR and RIIO that can be applied to Michigan's cost-of-service regulatory structure, particularly financial incentive/penalty methods to direct utilities toward replacement or improvement of grid infrastructure and new technology and service options that could result in a reduced combined-level of capital and operating expenses, and subsequent lower cost-of-service than simple replacement under a "business-as-usual" regulatory framework.

The Regulatory Assistance Project (RAP) has recently joined forces with the National Renewable Energy Laboratory (NREL) to issue a very comprehensive report (September 2017) addressing the latest U.S. and global experience with respect to PBR. The report is timely relative to the preparation of this report due to its detailed analysis of new regulatory trends involving the use of PIMs layered over Michigan's traditional regulatory structure to achieve a diverse array of targeted policy outcomes. Due to its relevance, the RAP/NREL report is attached in its entirety as an appendix to this MPSC report.

Broad use of PIMs is a relatively new concept with little real-world experience among regulatory jurisdictions across the country. The results of the MPSC's initial study on PBR indicates there may be value to Michigan by using several specific PIMs. Targeted pilots could demonstrate results that could be replicated on a larger scale. In this manner, the MPSC can determine whether or not the PIM approach is able to meaningfully achieve the multi-faceted policy outcomes delineated in Sec. 6u of PA 341. PIMs could be designed to focus on elevating customer satisfaction, safety, reliability, environmental impact, or social obligations, however, addressing all five goals at once is a tall order as each goal needs to be refined with suitable incentives, performance criteria and metrics with a sense of the benefits, costs and cost savings involved in moving forward with each. Should the Michigan Legislature and Governor choose to pursue additional policies, the MPSC can explore other specific objectives, such as the use of PIMs to expand the level of distributed energy resources (DER) in Michigan. Should pilots be undertaken, the MPSC recommends a regulatory process with a strong stakeholder focus, as is the case with the UK's RIIO incentive regulation system.

The MPSC was also charged by Sec. 6u of PA 341 to evaluate methods to increase the time between rate cases with a view to encourage utility investments having

Deleted:

Deleted: the

Commented [A10]: Add citation in footnote?

Deleted: achieved

Commented [A11]: Maybe provide a definition? We usually say, "We define DER broadly to include distributed generation of all types (e.g., combined heat and power, solar photovoltaics, small wind, fuel cells), energy efficiency, demand response, energy storage, electric vehicles and the associated electric vehicle supply equipment, and microgrids.

extended payback periods and that promote cost efficiency. Regarding this issue, multi-year rate plans have been used in other state jurisdictions as a primary means of achieving these goals. The MPSC could test whether PIMs can be used to provide incentives to extend the period between general rate cases. Other states have used diverse and targeted performance mechanisms allowing for both positive incentives (rewards for good performance) and negative incentives (for unacceptable performance). At a minimum, such PIMs would address known potential risks arising out of multi-year rate setting periods, such as reduced customer service and service quality. Prudent PBR design in the U.K. and other U.S. states has recognized the need for a symmetric mix of incentives, both positive and negative, to optimize utility performance.

A related objective delineated by Sec. 6u of PA 341 is to evaluate the use of profit sharing mechanisms intended to share cost efficiencies between ratepayers and utility shareholders. These approaches are typically integral to PBR approaches using multi-year price control periods (e.g. the UK's RPI-X and RIIO). Fortunately, PBR includes a robust set of regulatory mechanisms that may have the potential to achieve *targeted* cost-efficiency through revenue sharing. Again, the MPSC would be receptive to utility pilot proposals that address this approach. As always with PBR, it must be carefully designed to achieve cost control objectives and to discourage undesirable outcomes. This report's assessment of the U.K.'s RIIO mechanism concludes that there are context variables that are different in Michigan's regulatory environment that renders a RIIO-type approach in Michigan impractical in the short run. However, there could be promise in certain applications of PIMs that could complement cost-of-service regulation in MI and result in cost-effective balancing of utility capital and operation expenses that take advantage of new technologies and ratepayers' desire to invest in advanced consumer-side resources that can provide benefits to the grid as whole.

PBR pilot initiatives would not be a stand-alone process. The Commission is interested in the integration of ongoing utility efforts related to distribution system planning with targeted incentive pilots. In addition, the new Integrated Resource Planning (IRP) process that resulted from the passage and enactment of Public Act 341 of 2016 and related utility filings will have substantial long-range planning impact with respect to generation technologies, and with respect to demand-side options such as energy efficiency, load-control, demand-response programs, and rate design (to the extent rate design is structured to meet demand-side resource goals). Given these complementary programs and initiatives, the MPSC intends to treat all PBR pilot and long-range planning initiatives using a holistic approach.

This report finds that the U.K.'s RIIO mechanism involves a context and regulator apparatus that developed over many years. Recreating a full RIIO-type approach in Michigan would be a monumental undertaking involving a significant amount of legislation, regulatory resources, and stakeholder support over a multi-year timeframe. That may not be practical. However, discrete goals can be prioritized and application of PIMs could result in policy makers' goals for more cost-effective, reliable, and safe utility service that is environmentally responsible and

Deleted: cases

Deleted: S

Deleted: stock

Deleted:

Commented [A12]: Sometimes you write "MPSC". Do you have a preferred option?

Deleted: s

Deleted: T

Deleted: with

Deleted:

Deleted: for

that results in superior customer satisfaction.

Report Origins and Purpose

This Commission report responds to the language of Act 341 of 2016 (December 21, 2016), which amended Act 3 of 1939, to undertake a study pertaining to Performance Based Regulation (PBR), and to report on its findings with written recommendations (Sec. 6u). As required by the statute, this report is filed with the legislature and the governor within one year after the effective date of Act 341, being April 20, 2018.

Sec. 6u (1) defined performance based regulation, in part, as a regulatory system in which a utility's authorized rate of return would depend on the utility achieving targeted policy outcomes. Regulatory mechanisms having targeted objectives are commonly referred to as performance incentive mechanisms (PIMs).

Sec. 6u (2) recognized that PBR includes some regulatory models that are broad-based alternatives to traditional cost-plus-return regulation, also known as cost-of-service (COS) regulation. Thus, the statute expanded the scope of review, by explicitly requiring the Commission to study the United Kingdom's (UK's) RIIO [revenue = incentive + innovation + outputs) model, an incentive regulatory model that is highly developed, with a significantly complex structure. The statute did not limit the study to the RIIO model, should the Commission find that other models implemented in various states or countries were of value.

Sec. 6u (3) established four specific factors associated with PBR systems that are to be evaluated within the study.

1. Methods for estimating revenue needed…during a multi-year pricing period that uses forecasts of efficient total expenditures (i.e. TOTEX as used in the RIIO model);
2. Methods to increase the time between rate cases…to provide the utility with opportunity to retain cost savings…and to encourage investments that have extended payback periods;
3. Options (i.e. mechanisms) for establishing incentives and penalties that pertain to customer satisfaction, safety, reliability, environmental impact, and social obligations; and,
4. Profit sharing provisions that can spread efficiency gains among consumers and utility stockholders and reduce the degree of downside risk associated with innovation.

All four factors were evaluated, and are addressed in within the various sections of this report.

Importantly, Sec. 6u did not create any new or revised authority impacting the Commission's ability to approve or implement PBR. However, Sec. 6u (5) explicitly noted that the Sec. 6u does not limit the Commission's *existing* authority to authorize PBR.

Commented [A13]: This is the third time this is mentioned in the ES. Consider consolidating this point in one place where it is most appropriate.

Commented [A14]: I think this could be a separate section that preceeds the ES.

Deleted: ,

Deleted: ion

Deleted:

1. Economic regulation of public utilities in Michigan

The Michigan Public Service Commission as a regulatory body, and its jurisdiction over public utilities, has its origin in Act 3 of 1939. It is the Commission's core enabling legislation and defines the scope of its legal authority to approve utility rates and services.

Both Act 419 of 1919, and Act 9 of 1929, preceded Act 3. Act 419 created the Michigan Public Utilities Commission, having jurisdiction over electric, manufactured gas and power. Act 9 expanded the MPUC's jurisdiction to include rate authority over amended natural gas purchase contracts, and the transmission and distribution of natural gas within Michigan. Act 3 abolished the Public Utilities Commission, replacing it with the Public Service Commission, and consolidated the Commission's regulatory authority over public utilities. The Act granted broad ratemaking authority to the Commission.

There have been several major and minor amendments to Act 3 over the years to define the structure of utility regulation in Michigan, to specifically delineate the Commission's authority, and to define procedures and processes for approving rate applications.

Table 1: Economic Regulation of Public Utility Table

YEAR	PA #	TITLE
1919	419	Michigan Public Utilities Commission
1929	9	Natural Gas
1939	3	Michigan Public Service Commission
1982	304	Amended Act 3 of 1939
2000	141	Customer Choice and Electricity Reliability Act
2008	286	Amended Act 3 of 1939
2008	295	Clean and Renewable and Efficient Energy Act
2016	341	Amended Act 3 of 1939
2016	342	Amended Act 295 of 2008

With regard to the processing of utility general rate requests, the use of historical test-years has dominated the rate setting process in Michigan for decades. Following the enactment of Act 3 of 1939, utility rate increases were determined with reference to an historical test-year, being a *pro forma* calculation of revenue requirements using the requesting utility's books and records as a cost foundation (pro forma means based on historical costs, as adjusted for non-recurring events). Approved revenues included a return on the utility's net plant, (where net plant

Commented [A15]: Public Act? If so, maybe spell out.

Deleted: d

Commented [A16]: Move to footnote.

consists of original cost, less accumulated depreciation). An historical test-year did allow for the use of projected sales levels to ensure that the final rates for the various rate schedules fairly recovered a utility's approved revenue requirement.

Through Act 286 of 2008, Michigan replaced its longstanding tradition of using an historical test-year in implementing cost-of-service regulation. Formerly, Act 3 did not specify the type of test-year to be used by the Commission. However, Act 286 explicitly introduced the option for regulated utilities to file their rate request using projected costs and revenues for a future consecutive 12-month period (i.e. a *fully projected* test year, as opposed to the limited adjustments to actual costs and revenues made in a pro forma calculation). It should be noted that the filing of a fully projected test-year by utilities was not a requirement, in that Act 286 continued to allow the filing of rate requests based upon a utility's historical costs and revenues. Significantly, no utility has filed with an historical test year since the passage of Act 286 in 2008. In addition, utilities are allowed to file a projected rate-case every year, and this has become the norm in Michigan for the two largest utilities, DTE and Consumers Energy.

Michigan's use of a fully projected test-year in setting rates constitutes a significant departure from an historical test year, with both pros and cons. On the plus side, the use of projected costs and revenues, as opposed to a pro-forma calculation, better informs the Commission with respect to short-term utility capital-planning. This is particularly important when year-over-year capital investment in Michigan is seeing accelerating investment in infrastructure replacement, and new technology projects (such as advanced metering infrastructure [AMI] and so-called "smart grid" technologies). Thus, in the recent past, an increasing portion of utility rate increases are directly related to capital investment programs, reflecting a combination of low inflation (reducing the rate of increase in operating expenses) and major new infrastructure investment.

However, there are important cons related to use of projected costs and revenues in the context of cost-of-service regulation. Use of projected costs, as opposed to historical costs, in determining a utility's revenue deficiency can blunt the regulatory lag associated with the strict use of actual (historical) costs and revenues to set rates. Such regulatory lag is considered a critical and positive feature of traditional cost-of service regulation, creating strong economic incentives for utilities to pursue cost efficiencies.

2. The UK's RIIO (revenues-incentives-inputs-outputs) mechanism

Per Sec. 6u of Act 341, the Michigan Public Service Commission has evaluated the United Kingdom's (UK's) RIIO performance-based regulation model and its suitability for duplication in Michigan, in whole, or in part, and with respect to any learnings that could have application in Michigan if applied as an adjunct to its current cost-of-service based regulatory structure. This review is attached as appendix B of the Commission's study.

Commented [A17]: Move to footnote?

Deleted: The effect is that for over 60 years, Michigan's regulatory paradigm of cost-of-service regulation was implemented within the context of an historical test-year.

Deleted: future

Deleted: ¶

Deleted: automated

Deleted: (

Deleted:)

Commented [A18]: Feels like this section needs a brief wrap up of some kind. How is economic regulation working currently? Are there challenges on the horizon that cannt be addressed with a 1-yr forward test year? Maybe good here to bring in some of the good background info from the ES on flattening load, changing customer preferences, new tech, etc. This would tee up the subsequent sections nicely.

Deleted: ion

Commented [A19]: Given the importance of this task, and that you draw conclusions about RIIO's applicability in the ES, I think you should consider adding a brief summary of RIIO here.

3. Survey of key incentive/PBR mechanisms and associated implementation details in the United States

Michigan continues to employ traditional COS methods for regulating utilities, but has utilized incentive mechanisms, alternative methods or performance metrics on a limited basis over the past 30 years. Although Michigan's utility regulatory past has not featured a formal PBR structure, it has featured variations of performance mechanisms designed to achieve improved reliability, quality and service. An ongoing issue for policy makers addressing PBR/incentive/penalty systems has been determining whether incentives should be applied to all phases of rates in a case or on a goal-specific basis. Regulators must then decide how to value those incentives and penalties associated with the chosen design based on specific goals and metrics. This report examined Michigan's past incentive mechanisms as well as implementation of PBR-related mechanisms in the United States and other countries. This review of incentive mechanisms can be found in Appendix C.

4. Cost-of-service regulation with added targeted-incentives

A broad approach to PBR in Michigan might look like cost-cap regulation to limit cost increases over time with specific PIMs to encourage a set of desired activities such as EE, DR and perhaps EV integration. Broad use of PIMs is a relatively new concept with limited real-world experience among regulatory jurisdictions across the country. New York is an exception, being an example of a state at the leading edge of PBR implementation in the U.S. The results of the MPSC's initial study of PBR indicates there may be value to Michigan of moving cautiously with marginal PBR additions built on the foundation of Michigan's successful COS regulation that has been refined over many years.

Using specific PIMS, PBR can elevate customer satisfaction, safety and reliability, reduce environmental impact, and help meet social obligations. However, addressing all five goals at once is a tall order as each goal needs to be refined with incentives, performance criteria and metrics with a sense of the benefits, costs and cost savings associated with moving forward with each. More narrowly, the MPSC may explore other specific objectives, such as the use of PIMs to cost-effectively integrate distributed energy resources or electric vehicles. Each effort would require stakeholder and public input and vetting so ratepayers understand what they are being asked to pay for and why it is valuable.

Targeted pilots could demonstrate results that could then be achieved on a larger scale. In this manner, the MPSC could determine whether or not the PIM approach

Commented [A20]: Be more specific?

Deleted: Michigan

Commented [A21]: Aspects?

Deleted:

Deleted:

Commented [A22]: As with RIIO, I think a summary here would be useful, maybe a table?

Commented [A23]: These should be defined.

Deleted: little

Commented [A24]: Worth noting that even NY has limited experience, in terms of how effective PIMs are, as they are just now being included in rate cases. MA on the other hand, has a fair bit of experience with PIMs related specifically to their nation-leading EE programs. This might be worth incuding here.

Commented [A25]: "selected"?

Deleted: ,

Deleted: with specific PIMs

Deleted: involved

Deleted: in

Deleted: al

Deleted: cost-effectively

is able to meaningfully achieve the multi-faceted policy outcomes delineated in Sec. 6u of PA 341. Should pilots be undertaken, the MPSC recommends a regulatory process with a strong stakeholder focus, as is the case with the UK's RIIO incentive regulation system.

With these general caveats, the Commission observes that the changing power sector -- including penetration of new technologies such as decentralized supply, growth of demand side resources, increasing intelligence and digitization of networks -- will change what regulation looks like in the 21st century. PBR, both to control costs and integrate these new technologies into Michigan's grid, may prove a valuable concept in the future path for Michigan's utility regulation. Performance Incentive Mechanisms that may work for Michigan are further discussed in Appendix D.

Deleted: disruptive

Deleted: al

PIM Options

1. Demand Response PIM

New energy legislation in Michigan requires the Commission to promote voluntary load management programs such as demand response programs, time-of-use and peak pricing, and air conditioner remote shut off. Additionally, it requires certain utility companies to offer Commission-approved demand response programs. A PIM could be used as an implementation mechanism for some or most of these requirements and provide guidance to utilities on what it means to achieve successful demand response program participation to meet PSC-set performance criteria.

Commented [A26]: cite statute?

Deleted: ing

Regulators can use generic or utility-specific economic and engineering studies to inform the setting of targets. Energy efficiency and demand response potential studies can identify the amount of investments that would be cost-effective for the utility to make. These studies can help regulators identify and define specific resource investment targets and costs.[3]

Metrics associated with demand response depend in part on the specific goals to be achieved. Demand response can be used for peak load reduction, load reduction to avoid targeted infrastructure investment, customer engagement, ancillary services to accommodate variations in net load, etc. Metrics should reflect whether or not the underlying policy goal is being met; e.g., whether peak demand has decreased over the prior year.[4]

2. Profit-sharing PIM for DR

By January 1, 2021, PA 341 requires the MPSC to authorize a shared savings mechanism for an electric utility to the extent the utility has not otherwise

3 Whited, M., Woolf, T., and Napoleon, A. (2015). Utility Performance Mechanisms: A Handbook for Regulators. Synapse Energy Economics. Retrieved from: http://www.synapse-energy.com/sites/default/files/Utility%20Performance%20Incentive%20Mechanisms%2014-098_0.pdf, p.37

4 Whited, M., Woolf, T., and Napoleon, A. (2015). Utility Performance Mechanisms: A Handbook for Regulators. Synapse Energy Economics. Retrieved from: http://www.synapse-energy.com/sites/default/files/Utility%20Performance%20Incentive%20Mechanisms%2014-098_0.pdf

capitalized the costs of the EWR, conservation, demand reduction, and other waste reduction measures as follows:

Commented [A27]: Spell out.

- A savings of 1 percent to 1.25 percent of the utility's total annual weather-adjusted retail sales in megawatt hours in the previous calendar year equals a shared savings incentive of 15 percent of the net benefits validated as a result of the programs implemented by the electric utility related to EWR, conservation, demand reduction, and other waste reduction, but not to exceed 20 percent of the utility's expenditures associated with implementing EWR programs for the calendar year in which the shared savings mechanism was authorized. The bill details how the MPSC is to determine the net benefits.
- At least 1.25 percent to 1.5 percent savings equals a shared savings incentive of 17.5 percent of the net benefits, with a cap of at 22.5 percent of expenditures.
- Greater than 1.5 percent savings equals a shared savings incentive of 20 percent of the net benefits, with a cap of 25 percent of expenditures.[5]

A similar shared net benefits scheme could be developed for demand response programs that save the utility and customers' expenditures on peak energy supply costs including the costs of fuel, peaking capacity, avoided transmission and distribution plant costs. The potential for savings from demand response programs administered by the utilities is particularly strong if specific plant, distribution and transmission investments can be avoided through demand-response. A shared savings mechanism ideally would provide sufficient benefit to the utility that the utility prefers demand response solutions where feasible to traditional capital investments in plant. The savings shared with customers must be fair so there is some form of joint savings from innovative cost-effective implementation.

With a shared net-benefit incentive structure, the utility shares with ratepayers in the benefits associated with, and identified from, its performance and the metric achieved. This can mean sharing in financial benefits between the utility and ratepayers. A shared net benefits approach needs to be carefully designed and implemented to clearly identify the shared benefits, ensure the utility appropriately controls costs, and that the mechanism cannot be gamed. Implementation of shared savings schemes can be difficult because the focus on evaluation, measurement and verification (EM&V), the concept of shared net-benefit's inherent imprecision, and translation to dollars can negatively impact a utility-regulatory-ratepayer relationship. This approach relies upon accurate benefit calculations through evaluation and measurement, and a clear EM&V plan based on objective metrics.

3. Positive and Negative PIMs for Optimizing CAPEX and OPEX

If a good estimate of overall capital expenditures (CAPEX) and operational expenditures (OPEX) costs and timeframe can be set in advance through a formal proceeding, it is possible to use a carefully designed PIM mechanism to provide incentives and penalties for utility optimization of capital investment and

5 Michigan Public Service Commission. (2017). Energy Law Updates. Retrieved from: http://www.michigan.gov/mpsc/0,4639,7-159-80741---,00.html

operational expenses. Such a CAPEX/OPEX mechanism would provide incentives for cost savings and penalties for cost overruns.

While such a CAPEX/OPEX PIM could stand alone, a PIM for capital expenditures could also be built into a cost-cap regime. Either way, the "new" capital expenditures would need to be added into the revenue requirement cap and translated to a rate cap adder for additional capital expenditures beyond those involved in business-as-usual operations. A focal point of such a system is to ensure that business-as-usual capital expenditures are counted only once in either the revenue requirement or the capital expenditure adder to avoid double recovery of these costs. Beyond that, the critical element that would require substantial effort up front is to establish a reasonable capital budget and timeframe on which to calculate the capital expenditure adder (or rider) that savings would be measured from using OPEX judiciously. This would involve a substantial initial effort by the regulators and utility to determine a reasonable capital expenditure plan over some time frame such as 3, 5 or 8 years based on a proposed and adjudicated capital investment plan.

Deleted: CAPEX

Commented [A28]: Confusing how capex and opex are related here

From a capital expenditure plan and timeframe, a series of incentives could be designed to reward the utility for implementation under budget or ahead of schedule, and penalize the utility with disallowances of some percentage of costs for delays or over-budget projects. As an example, if a utility completes a set of distribution upgrades on time with savings of 10 percent from the project budget, the utility could be allowed to keep half of those savings and half could be "returned" to ratepayers. While the symmetry of such a proposal may appear elegant, the current system results in utilities often keeping 100 percent of any saving from a future test year, so the utilities may not be motivated to share these saving with ratepayers.

If capital projects miss timeframes or run over budget, a penalty of disallowing some utility recovery of expense or profit might be imposed. So, if a set of distribution upgrades is completed 10 percent over budget, the utility may only be allowed to recover half of the overrun from ratepayers, and utility shareholders would be expected to absorb the other half. Again, while the symmetry of this may appear elegant, it is worth noting that the risk of cost overruns is typically placed entirely on ratepayers under traditional regulation (unless a prudence review finds utility imprudence). For this reason, utilities likely would oppose any disallowances for cost overruns.

Deleted: are managed to

Deleted: of the cost overruns

The benefits to the utility of sharing in savings from optimizing capital and operation costs is that they may be able to achieve long-term capital investment certainty over a specified time frame such as 3, 5, or 8 years. They also could share in benefits if the utility can use OPEX to operate more efficiently. With that certainty, utility management would place greater focus on project management and implementation and would consider a wider range of solutions to address known system deficiencies, as they seek to minimize costs and increase operational efficiency. This could include new and innovative customer or third-party solutions that the utility would normally not consider. This would be closely tied to the Commisison's efforts on making changes to distribution system planning.

Deleted: can

Deleted: assessing

Deleted: the least costly options

4. Output goals: Customer Satisfaction

PBR can focus on improving customer satisfaction and can also promote customer engagement and empowerment. Customer engagement and empowerment is defined here as the ability of customers to provide feedback on utility service, adopt demand-side energy options, and the ability to see publicly reported performance data on their utility.

Case studies from around the world indicate that paying attention to customer satisfaction is an important indicator of utility performance. Done well, these metrics can help transform the utility business model by focusing utility attention on integrating customers. Focus on customer satisfaction can range from public reporting of customer satisfaction rankings, to metrics focused on utility customer empowerment, to public reporting scorecards.

5. Output goals: Safety

PIMs for safety generally focus on employee and public safety goalsm and usually require a high and improving level of both employee and public safety. Metrics in this area are intended to provide indicators of incidents, injuries, and fatalities associated with contact with the electric and natural gas system, and adequacy of response to emergency situations.[6]

6. Output goals: Reliability

Setting reliability goals, performance criteria, or metrics is universally recognized as desirable since it effectuates one of the central public utility service goals: safe and reliable service at just and reasonable prices. That said, establishing the precise incentive or penalties, performance criteria and metrics can be difficult.

7. Output goals: Environmental Impact

In Michigan, the need to transition to a modern and clean electrical sector enjoys recognition across a broad spectrum of energy sector stakeholders. Equally significant is Michigan's reputation as a technological and industrial innovator. The breadth of advanced energy technologies being developed and deployed makes tracking any one set of technologies a significant challenge. But this does not mean that regulators cannot set up accommodating utilities structures to integrate advanced technologies into Michigan's grid planning and distribution investments. In fact, this is imperative where new technologies present the opportunity to allow Michigan ratepayers to improve the quality of their own or distribution service overall and present new least-cost solutions.

The challenge is to set up a flexible performance-based structure that encourages utilities, third-party providers and ratepayers to move toward environmentally beneficial and least-cost solutions. With advanced technologies entering the market with regularity, it is almost impossible to determine cost-effectiveness in advance. But regulatory structures can create "facilitated competition" space where

6 id.

Deleted: And d

Deleted: . These are

Deleted: to

Deleted: the

Commented [A29]: I assume MI already uses reliability indices, so maybe describe here how you could build on that?

Deleted: Reliability is good but too much reliability is expensive.

Deleted: a

Commented [A30]: This does not seem related to environmental impact. Is there an implicit assumption that these same techs also lead to reduced emissions? If so, that should be stated up front.

Deleted:

Deleted: across the grid, third-party, customer benefit and cost spaces

Commented [A31]: Although costs are falling, we think cost-effctiveness can be estimated with reasonable certainty for the purposes of decision-making.

utilities are rewarded for acquiring competitively bid services that reduce overall system costs. Most advanced customer-site resources (excepting distributed fossil generators) will have an environmentally beneficial effect so it is possible to focus on achieving the least-cost set of distributed solutions and comparing those to a set of grid upgrade costs.

Commented [A32]: The emphasis on costs in this section is confusing, since it is about environmental impacts.

Commented [A33]: This is too much of a generalization. There could be environmental benefits depending on what is being replaced (e.g., replace old oil boiler with efficient gas CHP) and what is being deployed (e.g. fuel cells).

8. Output goals: Social Obligations

It is important for the regulator to be able to assess impact on low-income and vulnerable customers, and to correspondingly assess utility response to LMI impacts. PBR and specific PIMs focused on these areas can help the regulator, the utility, and other stakeholders address and empower this segment of the population. The primary question with PBR schemes that is often raised by low-income and other consumer advocates, is how to craft incentives that drive meaningful utility action in exchange for reasonable, but not excessive, revenues.[7] There are two components to metrics in this area: 1) protection of low-income customers and attention to payment method options, disconnection rates, prepayment meters, etc., and 2) customer empowerment which enables vulnerable customers to pro-actively reduce their consumption, manage costs, and interact with the grid.

Commented [A34]: Spell out?

Deleted: force

Deleted: alleviate

9. Multi-year rate plans

The MPSC was also charged by law to evaluate methods to increase the time between rate cases with a view to encourage utility investments having extended payback periods and that promote cost efficiency. The MPSC could test whether PIMs can be used to extend the period between general rate-cases. In doing so, it would be necessary to utilize a diverse set of performance mechanisms allowing for both positive incentives (rewards for good performance) and negative incentives (for unacceptable performance). At a minimum, such PIMs would address known potential issues arising out of multi-year rate setting periods, such as reduced customer service and service quality that are well established as issues in many other jurisdictions using multi-year rate plans.

Commented [A35]: Cite statute?

Deleted: target

Prudent PBR design in the U.K. and other U.S. States has recognized the need for a symmetric mix of incentives, both positive and negative, to improve utility performance. The mixture of incentives that can enhance well-established and time-tested traditional regulation is different for the priorities of each jurisdiction.

Deleted:

10. Public Reporting Mechanisms

Public reporting obligations, such as tracking specific performance criteria and metrics that are important for Michigan's regulatory goals, are a way to build experience with performance metrics prior to attaching rewards or penalties. The benefit of a public report-only metric is that regulators and utilities can implement performance metrics without attaching financial awards to gain experience and training as the performance metrics are fine-tuned. The establishment of a reporting obligation communicates the importance of that performance criterion

Deleted: a

7 Thompson, A. (2016). Protecting Low-Income Ratepayers as the Electricity System Evolves. Energy Bar Association. Retrieved from: http://eba-net.org/sites/default/files/18-265-305-Thompson%20-%20FINAL_0.pdf

and metric to the utility, stakeholders and the public.

The requirement that utilities track, analyze and report specific information can encourage desired utility behavior, serve as precedent to establishing incentives attached to some or all of the metrics, and provide transparency which may allow other stakeholders to interact with the utility in more predictable ways that are important for supporting third-party energy service businesses and customer investments in customer-side resources. Some of the above-mentioned PIMs could first be instituted as public reporting-only measures. Additional options Michigan might consider for a public tracking metric include progress on green pricing programs and on-bill financing.

Deleted: different

Deleted: be

Deleted: with the utility

Deleted:

Deleted:

a. Green Pricing:

Under Public Act 342, electric utilities must offer customers the option to participate in a voluntary green pricing program. Under this law, customers can specify the amount of electricity provided to the customer that will be generated from renewable energy. Utilities are to submit their programs to the Commission for review in the fall of 2017, for review of 1) whether different customer preferences or objectives are met, 2) how program costs are calculated, 3) how much of fees go to marketing and administration, and 4) whether the program is based on cost-of-service principles. A public tracking metric or metrics, based on survey results of customers enrolled in the green pricing programs, could help the Commission and utilities identify whether customer objectives and preferences are being met, and thus lead to clarifications or improvements.

Commented [A36]: Did they?

Deleted: make apparent

b. On-Bill Financing:

Under the new energy law, rate-regulated utilities may offer residential customers the option to finance home energy improvement projects, and the ability to pay off the costs of those projects on their utility bill. The Commission is to work with utilities and other interested parties to create a framework for "on-bill financing" programs. A public tracking metric could be developed as part of this framework to enable the Commission and utilities to track the number of improvement projects that use on-bill financing, customer savings, and feedback from customers on various utility offerings and implementation of this option.

Commented [A37]: Cite?

Deleted: the

5. Multi-year rate cases as a PBR approach

Commented [A38]: This section should probably have more detail to better explain the dynamics of using MYRPs as a key element of a PBR framework.

Multi-year rate plans were first used in the 1980s for railroads, telecommunications, and other industries facing competition and changing demand, and were introduced for U.S. electric utilities in the 1990s. The purpose of these plans was to motivate efficient operations and thus low-cost service while maintaining reliability and customer service. Traditional cost-of-service regulation

Deleted: , a first effort at PBR,

Deleted: in

essentially assumes that sales growth is a predictor of cost growth. To address this, PBR is often explicit in allowing utilities to earn higher profit if they become more efficient by cutting cost and continuing to provide quality service.[8] The PBR construct to control costs is to set utility revenue over a number of years and then allow the utility to retain all or some portion of cost savings resulting from efficiency gains. Customers should then benefit over the longer term as the utility becomes more efficient. The Commission has examined multi-year rate plans in other states as required. Please refer to appendix E.

Commented [A39]: Check the reference. It refers to profit, not revenue. PBR is not designed to drive up revenues, which is the point you make in the next sentenc.

Deleted: revenue

Commented [A40]: As in other sections, I think a brief summary here would be very useful, maybe along with a table, if appropriate.

Legal Considerations for implementing Multi-Year Rate Plans in Michigan

PBR over multiple years should be based on projections of costs, revenues, inflation and productivity in the future. Current law provides only for a test using a 12-month period which stretches about 18 months[9] from the time of filing into the future.

Deleted: of

Deleted: ¶

PBR focused on cost control often takes the form of a multi-year rate plan (MRP), with various mechanisms: productivity indexes, attrition relief mechanisms (ARMs), earning sharing mechanisms (ESMs) and performance incentive mechanisms (PIM)s. Without those mechanisms being in place, and without earnings sharing mechanisms, multi-year rate plans could fail to achieve cost-control incentives and fail to encourage increased utility productivity.[10]

Commented [A41]: Does this pargrpah belong under "legal considerations…" or should it come before that?

6. Potential applicability of broad-based PBR in Michigan

a. RIIO as applied in the UK would not be appropriate for Michigan

The RIIO incentive structure now in place in the UK is an evolution from the regulatory framework that was in place before it, called RPI-X. RPI-X was itself an incentive-based regulatory scheme, focused primarily on price and revenue caps. RIIO is a regulatory evolution building on experience and lessons learned from

Commented [A42]: Maybe spell out again?

Commented [A43]: Define in a footnote.

8 Regulatory Assistance Project. (2000). Performance-Based Regulation for Distribution Utilities. Montpelier, VT: The Regulatory Assistance Project. Retrieved from: http://www.raponline.org/wp-content/uploads/2016/05/rap-performancebasedregulationfordistributionutilities-2000-12.pdf, p. 35.

9 An example of a projected test year is DTE Electric's latest rate case, MPSC Case No. 18255, which was filed in April 2017 for the 12 month period ending October 31, 2018.

10 https://emp.lbl.gov/sites/all/files/lbnl-1004130.pdf

many years of utilizing incentive regulation in the UK's utility sector. UK regulators made improvements over the course of many years to result in the broad-based incentive PBR model now in place. The multi-year regulatory review prior to finalization of RIIO as well as its incremental implementation were critical to building stakeholder support for the reforms.[11] The prior projections of efficient future costs were an essential element of RIIO and would require a modeling and economic projection ability beyond that currently in use in setting rates in any U.S. jurisdiction. If Michigan were to move toward a similarly ambitious performance incentive regime it would likely require a similar regulatory review and stakeholder engagement over a multi-year timeframe.

Though the comprehensive RIIO process in full form is likely unrealistic for Michigan to pursue, there are some lessons learned from RIIO that could be applicable here. First, the UK regulators' initial focus on cost control resulted in regulated firms cutting back on customer service, reliability and service quality to achieve maximum cost savings. Regulators corrected this by implementing incentive mechanisms that focused on customer service and service quality. Second, UK regulators learned that cost cap regulation was not producing the kinds of consumer savings they desired and implemented shared-savings mechanisms to balance utility and customer benefit. These types of incentive design features are ones that Michigan could consider in a PBR scheme, even if not implemented as part of a broad-based regulatory apparatus such as RIIO.

In undertaking RIIO, UK regulators recognized the need for substantial new capital investment in the utility system to replace aging infrastructure and maintain reliability and grid services. They also recognized that the investment in the existing grid could not consist simply of a one-for-one replacement of retiring assets if decarbonization goals were going to be met. Thus, the regulator set innovation as one of the primary goals for incentives in RIIO. Several innovation rewards were created including competitive awards for innovative proposals to improve environmental performance of distribution networks and an annual competition to fund up to 90% of costs for large-scale projects that demonstrate environmental benefits. There are a variety of approaches that Michigan could take from RIIO in this area, including PIMs (implemented as an increment in return on base revenue) or specific monetary rewards for innovative projects or for replacing aging infrastructure with new, decentralized technologies. Michigan's traditional leadership in the automobile industry may also lend itself to innovation in integration platforms for utility or third-party aggregator models for EV charging linked to modern distribution system investments.

Differences between the electricity industry structure in the UK and Michigan could make some of the UK approaches difficult to replicate. The unbundled nature of the industry in the UK contributes to the difficulty regulators there face in achieving environmental goals. This structure means that UK regulators oversee network distribution companies but have little authority over the sources of electricity supply, or how end-use consumers behave. As a result, much of RIIO's environmental incentives are focused on encouraging network companies to take measures that reduce environmental impacts, but does not hold network

[11] Guarini Center's (NYU/Law) January 2015 report to the New York Public Service Commission.

Commented [A44]: Prior to what?

Deleted: a

Deleted: al increase

Deleted: -

Deleted: -

Commented [A45]: I don't think you've really discussed these differences yet, other than to say there are differences.

Deleted: As discussed earlier, the d

companies accountable for a low-carbon transition. This is one potential shortcoming that need not exist in vertically integrated states like Michigan where utilities have more direct control over the generation fleet and therefore the environmental attributes associated with electricity supply.

b. Pros and Cons of different approaches and conditions for successful implementation

Stand-alone PIMs could be legally sound tools to direct utilities as long as rates remain just and reasonable. In general, PIMs are not explicitly barred by Michigan law. For instance, revenue decoupling mechanisms (RDMs) are available in the gas context currently, and for electric utilities with fewer than one million customers, as specified by legislation.

Michigan's legal framework includes Michigan's Clean and Renewable Energy and Energy Waste Reduction Act, enacted by Public Act 342, amending Act 295 of 2008, for instance. Efforts beyond these could result in pushback if a PIM was developed, which was not universally well received, and not explicitly written into the law.

Some PIMs, such as cost trackers, are already a part of the regulatory framework. Trackers have not been a preferred regulatory tool in Michigan recently. Trackers can reduce regulatory lag and allow a utility to pass through costs but they can also utilities to manage and control costs. The Commission has used trackers in the past, however, to reduce the utility's current disincentive to reduce energy consumption. The ability to come back every 12 months for a rate case has reduced the MPSC's consideration of trackers, as regulatory lag is lessened.

Certain trackers, such as uncollectible expense equalization mechanisms have been tested at the Court of Appeals and deemed legal under Michigan's regulatory framework, even if they may have fallen out of favor. *In re Application of Consumers Energy Co.*, 279 Mich. App. 180, 756 N.W.2d 253 (2008). And, power supply cost recovery (PSCR) and gas cost recovery (GCR) cases are pass through costs which are estimated in a plan and reconciled as a matter of law. It is not retroactive ratemaking but a deferred expense. So, trackers, if carefully crafted and for the right purpose, could still be used under the current regulatory framework. The challenge would be to incentivize the right type of behavior.

7. Conclusions/Recommendations

The majority of states in the U.S., including Michigan, continue to operate under a traditional cost-of-service [cost-plus ratemaking] regulatory structure. This structure has developed into a complex system that, similar to the UK's regulatory structure, has also evolved over time to meet new challenges. These challenges have encompassed such issues as changing economic conditions, the growth of competitive wholesale energy markets, aging infrastructure, and evolving consumer needs.

Commented [A46]: You claim that differences b/w UK and MI make RIIO difficult to replicate in MI, but you have not enumerated those differences here. The differences you point to in this paragraph should actually make it easier to implement PIMs related to environment and customer behavior. So what are the differences that make it harder to do in MI? I think your main argument above is that it is a huge regulatory lift to implement something so comprehensive, and that has merit. The UK is a much bigger market and took several years to go through the process, which included a lot of study and sakeholder engagement. This could be hard for MI to do given its resources. Are there also legal limitations?

Commented [A47]: How is this related to PIMs?

Commented [A48]: Explain how this law enables PIMs or PBR

Commented [A49]: This statement will probably make more sense once you explain how RDMs and the laws above relate to PIMs.

Commented [A50]: I don't think cost trackers fall into the PIM category, at least not how the definition of PIMs is being used in this report.

Commented [A51]: Missing a word here.

Deleted: have retained

Deleted: difficult

More recently, the introduction of advanced technologies in the utility industry, an unprecedented potential for expanding renewable and distributed generation resources, and an increased focus on reliability and grid resilience have taken on importance. In grappling with these challenges, particularly the more recent and emerging issues, some states have experimented with various levels of implementation of Performance-Based Regulation (PBR). Significantly, even those states that are deeply implementing PBR concepts, are retaining cost-of-service regulation as a foundation.

A focal point for PBR in some jurisdictions is cost control through the use of multi-year rate plans. Clearly, states otherwise experiencing more frequent general rate cases filed by their regulated utilities will see a reduction in the regulatory burden as a result of the multi-year rate case approach. What is not clear is whether a multi-year rate case approach can be a primary means to achieving select output-based goals if such cost-efficient utility investments have extended payback periods. An approach to the review of long-term investments that can be married to multi-year rate plans to pursue the goals of both short-term cost management and long-term capital investment cost management while providing incentives for innovative cost reductions is the challenge.

Although the Commission is open to new approaches in general rate cases encompassing multiple 12-month future rate plan periods, expanding Michigan's traditional rate cases (that use ex ante reviews) into multi-year future test year rate-cases would involve unique challenges, making the development of the regulatory model and its implementation critical. The development of safeguards was key to the evolutionary development of the UK's broad-based incentive regulation structure and is thus part of the foundational PBR structure of RIIO.

Built-in RIIO safeguards include: (1) the filing of extensive business plans reflecting the entire multi-year rate plan period; (2) total expenditure benchmarking that ties projected costs to economic efficiency (x-efficiency) and industry best practices; (3) symmetric cost-sharing mechanisms for both capital and operating expenditures that have multi-level sharing factors; (4) uncertainty mechanisms that reduce forecast risk, such as inflation adjustment mechanisms and sales-level adjustment mechanisms; (5) annual reconciliation proceedings to implement safeguarding mechanisms; (6) mid-period re-openers for addressing significant deviations in law, energy policy, taxes, and events beyond the control of the regulated firm; and (6) lengthened regulatory review periods so as to allow adequate analysis of the complex interworking of all components of the multi-year projections.

The U.K. safeguards are critical to protecting both regulated utility shareholders and ratepayers from potential risks, especially those related to forecast errors (e.g. that would affect the firm's ability to participate in capital and debt markets), and also to protect network users from risk that the company's cost projections are over-stated, or take insufficient account of the opportunities for cost savings.

Prior to a decisions on implementing more comprehensive PBR in Michigan that includes the use of multi-year rate plans, the MPSC may opt to test the approach of using PIMs (without a multi-year rate case) to extend the period between the filing of general rate-cases, to encourage utility investments having extended payback

Deleted:

Commented [A52]: Per earlier comments, you should enumerate these somewhere in the main body of the report, and not just leave it for an appendix.

Deleted: focused on

Deleted: a

Deleted: case

Deleted: closely-spaced filing of

Deleted: rate case cycles, and hopefully streamlined regulatory administration,

Commented [A53]: Interesting point – probably worth exploring in more detail in the appropriate section within the main body of the report.

Deleted: cost

Deleted: both

Deleted: -

Deleted: projected

Commented [A54]: Define? Especially since this was not explicitly described in the main text.

Commented [A55]: This seems better suited to the section in the main text on RIIO, rather than in the conclusions section.

Deleted: T

periods, promote cost efficiency, and to achieve other output-based goals.

PIMs can also be used to enhance customer satisfaction through public reporting metrics on various measures of customer satisfaction. The UK and Denmark both utilize dashboards to rank utilities on various measure of customer satisfaction. Reportedly, these metrics and dashboards have led to higher levels of customer satisfaction in both jurisdictions.

PIMs can also be sued to encourage non-wires alternatives, which may be more cost-effective than traditional utility capital investments in traditional infrastructure. Among the approaches taken to accomplish these are NY REV's incorporation of a variety of incentives to encourage utilities to work with third-party service providers to efficiently integrate distribute resources in New York's distribution system.

A PIM structure could be fashioned by the MPSC to share savings between the utility and ratepayers where such projects are cost-effective and save money compared to traditional capital investments in utility plant. The Consolidated Edison Brooklyn-Queens demand management project in New York has shown the magnitude of potential savings that can be achieved with innovative demand-reduction and targeted DER investments.

The MPSC notes that a robust stakeholder engagement process will be important to the success of new and innovative programs. This is particularly the case with the opportunities that advanced technologies now offer to realize grid and customer values simultaneously.

If PIMs are considered in the future by the Commission, such a mechanism should include both positive incentives (rewards for good performance) and negative incentives (for unacceptable performance such as reduced customer service and service quality). Good PBR design in the U.K. and other U.S. states has recognized the need for a mix of incentives, both positive and negative, to improve utility performance.

Any step forward should recognize the well-developed Michigan cost-of-service model, which itself has evolved considerably over the past four decades. Performance incentives can be added onto traditional cost of service regulation as enhancements, rather than a wholesale replacement. Keeping Michigan's cost-of-service regulatory model intact while perhaps building upon it by incorporating the use of targeted incentive mechanisms appears to be an advisable course of action.

A question the Commission can continue to explore is whether or not a diverse set of PIMs could facilitate the evolution of Michigan's regulated utilities toward more reliable, and resilient providers while increasing value to consumers.

This will require shifting the traditional focus of infrastructure maintenance from a like-for-like replacement of grid assets toward the deployment of lower lifecycle-cost, advanced technologies and practices. Regulated utilities would, under this approach, have in addition to their traditional role as retail energy supplier a stronger role providing network services to an increasingly diverse group of users. The Commission could consider the option of regulatory pilots based on targeted performance mechanisms to test PBR concepts in helping achieve these important

Deleted: and

Deleted:

Commented [A56]: Odd to first hear of Denmark in the Conclusions section. It should be decribed in the main text if it is to also appear here.

Deleted: RIIO

Commented [A57]: Same comment here. First mention of NWAs

Commented [A58]: Same comment here. This is the first mention of REV.

Deleted: plant

Commented [A59]: Same comment. First mention of BQDM

Deleted: incorporation

Deleted: of public

Deleted: with stakeholders and the utilities

Deleted: is

Deleted: , on the other hand,

Deleted: ¶

Deleted: Building on the strength of the current regulatory model, by incorporating the use of targeted incentive mechanisms may be combined with the current cost-of-service approach.

Deleted: set of

Deleted: s

Deleted: a

Deleted: grid

Deleted: ,

goals. As always with PBR, it must be carefully designed to achieve cost control objectives and not to encourage undesirable outcomes.

Any PBR pilot implemented would be in the context of Michigan's current initiatives in long-term distribution-planning, energy waste recovery programs, distributed generation tariffs, PURPA proceedings, and the Integrated Resources Planning process recently put in place by Act 341.

Reliability and grid resilience will be a focus of much future infrastructure development. Customer-sited renewable generation (such as solar PV), energy storage, deployment of electric vehicles, and microgrids are all in a state of infancy in Michigan and could potentially play a role in helping achieve reliability and resilience output-goals established within a PBR framework.

As specified in PA 341, Sec. 6u. the Commission has completed a study in collaboration with input from multiple stakeholders regarding performance-based regulation, under which a utility's approved revenue would depend on the utility achieving targeted policy outcomes.

This study has examined performance-based regulation systems that have been implemented in other countries, including the RIIO model utilized in the United Kingdom. Other topics that have been examined include:

* methods for estimating the revenue needed by a utility during a multiyear pricing period,

* methods to increase the length of time between rate cases, options for establishing incentives and penalties that pertain to issues such as customer satisfaction, safety, reliability, environmental impact, and social obligations, and

* profit-sharing provisions that can spread efficiency gains among consumers and utility shareholders and can reduce the degree of downside risk associated with attempts at innovation.

MPSC has found the research process undertaken in the creation of this report to be useful in evaluating new regulatory tools that have been utilized in other jurisdictions. As discussed herein, such changes require that stakeholders find common ground. To the extent there is an interest in pursuing PBR further, the next steps could include a technical conference/contested case to fully vet the above, and any other options, before moving into the pilot or implementation phase.

Deleted: As indicated above, a

Deleted:

Deleted: advanced

Deleted: -

Deleted: by

Deleted: c

Commented [A60]: We would recommend against a contested case as a next step. Beyond technical conferences, the MPSC may want to pursue a more collaborative process via a proceeding, which would eventually lead to PIMs/PBR being incorporated into rate cases. The collaborative could also help outline the scope and expectations of any pilots.

Attorney General

Performance Based Regulation (PBR)

Attorney General Preliminary Comments
To MPSC Staff Draft Report of December 21, 2017

In compliance with Sec. 6u of Act 341 of 2016, on December 21, 2017, the Staff of the MPSC made available to stakeholders involved in the PBR study a draft report of its review of performance-based regulation systems and potential applicability to Michigan. The Staff is seeking comments from the PBR Study stakeholders by January 18, 2018.

AG Comments:

1. Staff has concluded correctly that Michigan's utility regulatory-structure and traditional cost-of-service regulation have evolved over the years and have worked well to achieve the State's energy policies. Concurrently, they have provided predictable rates and service levels to energy customers in a stable regulatory environment for utilities.
2. Staff also has correctly concluded that PBR is a relatively new incentive-based regulatory framework, and broad use of PIMs is a relatively new concept with little real-world experience among regulatory jurisdictions across the country. As such, the Commission should approach any move to PBR or broad use of PIMs with great caution until wider use of PBR occurs in other states and more performance data with lessons learned are gathered over a longer time period from implementation of PBR and PIMs.
3. There is no significant benefit to be an early adopter or on the leading edge of implementation of PBR mechanisms. The risk and cost of getting it wrong can significantly outweigh any benefits, particularly when there are no major problems with the current regulatory model or significant compelling reasons to move to a riskier model.
4. Staff's draft report does not adequately define what problems PBR needs to solve or what objectives it is meant to achieve. Without adequately identifying and defining those problems or objectives, the design of an appropriate PBR mechanism or implementation of any PIMs will be aimless and likely will not achieve the intended results. Objectives must be defined and used as guiding principles either in this report or in the next phase of this project if it continues. Some of the objectives could revolve around achieving competitive rates, cost efficiencies, profit sharing over a threshold ROE, fewer rate cases, fewer rate increases, improved service reliability, safety and customer service levels.
5. PBR and PIMs should not be designed to micro-manage specific Company decisions or incentivize uneconomic decisions for the sake of implementing new technologies or promote new market segments, such as distributed generation, green energy or PEVs, if they are not economically viable.
6. PBR and PIMs should not be used to impose social obligations on the utilities or achieve social engineering in rate design. This is a responsibility of the state legislature.
7. The advancement of new technologies and new markets which could transform existing power system is at best in its infancy and still unproven. The Commission should not over-rely on such potentially transformative trends to justify implementing PBR mechanism and PIMs in the near future, if at all.

8. Establishing appropriate levels of capital expenditures within a PBR mechanism should be done in the context of ensuring that the utility does not defer capital investments necessary to maintain the integrity of the system in order to achieve short term financial gains during the PBR period.
9. The PBR period needs to be sufficiently long to ensure the key objectives are achieved in a consistent manner. This timeframe should be in the area of 3 to 5 years before changes are made.
10. Overlaying a PIM over the existing cost of service model could work if not overly prescriptive. Such a PIM could be designed to incorporate at least the following features:
    a. A forecasted revenue base with annual escalators over the PIM timeframe reflective of cost efficiencies and capital expenditures.
    b. Annual revenue escalators adjusted based on the achieved level of capital expenditures, competitive rates, service reliability, safety incidents, customer service standards and other key metrics relative to prior year and a regional peer group.
    c. Sharing of earnings with customers over an establish ROE threshold.
    d. RDM and IRM mechanisms would no longer be necessary and should be discontinued.
11. Such a PIM could be piloted for a period of three years with at least two major gas utilities in order to evaluate its effectiveness and potential refinements. Electric utilities are facing more complex issues currently and will in the near future with significant generating resources replacement. These circumstances make a pilot program too difficult and risky to implement.
12. The draft report does not directly address the existing GCR and PSCR mechanisms which represent more than half of a customer's gas or electric bill. These mechanisms currently are strictly cost pass-through mechanisms. To achieve significant potential cost savings for customers such mechanisms should also be included in future PBR studies to determine if additional cost efficiency could be achieved and how they should be shared between the utility and its customers.
13. The draft report also raises the possibility of reestablishing cost trackers as an alternative to PIMs. Cost trackers are not equivalent to PIMs. They are a simple mechanism for direct pass-through of costs. There are no performance goals or incentives involved. It would not be good regulatory policy for the Commission to implement new cost trackers.
14. In the AG's opinion, PBR has not sufficiently advanced in the United States regulatory scene to the point where a track record of success has been clearly established. Therefore, implementation of a PBR scheme in Michigan or the overlay of a PIM on top of the existing cost of service regulation is a risky undertaking. Furthermore, there is no looming problem or compelling objective that makes it necessary to implement PBR at this point in time. Thus, the AG recommends that in its report to the Governor and the Legislature, the Commission conclude that implementation of PBR or PIMs in Michigan is premature, but it will continue to monitor, study and report developments periodically.

15. Should the Commission recommend to the Governor and the Legislature that it wishes to proceed with a potential implementation of some form of PBR with a pilot PIM, then the AG recommends that the Commission direct Staff to conduct a multi-month technical conference and collaborative effort with interest stakeholders to design an appropriate PIM, before imitating a contested case. Given the many intricacies and issues involved in a PBR mechanism or PIM, it will be more effective to resolve those issues and design an appropriate mechanism in a collaborative fashion.

Ault, Jim – President of the Michigan Electric & Gas Association (MEGA)

The Executive Summary should be streamlined to include a brief definition of performance based regulation (PBR), a brief history of PBR, a comparison of PBR to traditional regulation, and brief commentary on the advantages and disadvantages of utilizing PBR solutions. As written, it isn't elementary enough for a non-technical audience.

"Fundamentals of Energy Regulation" (2nd edition) from Lesser and Giacchino includes some concise language on PBR that might be worth referencing.

Consumers Energy

Consumers Energy Comments on the Michigan Public Service Commission's Draft Performance Based Ratemaking Report

On December 22, 2017, the Michigan Public Service Commission posted a draft Performance Based Ratemaking (PBR) report with a final report due to the legislature on April 20, 2018. Consumers Energy appreciates the collaborative stakeholder process that the Michigan Public Service Commission staff held in the months leading up to this draft report. We also appreciate the opportunity to provide constructive comments on this draft report. In these comments, Consumers Energy is providing some targeted feedback based on our research, analysis, conversations and initial thinking on Performance Based Ratemaking and its applicability to Michigan.

The final report could benefit from a summary of key PBR concepts and themes

Performance Based Ratemaking is a complex, multi-faceted issue. A number of approaches have been tried in the U.S. and across the globe. The policy goals and mechanisms vary across jurisdictions and there is no standard definition for PBR. For instance, the Florida Public Service Commission tracks electric generation fuel efficiency via a "Generating Power Incentive Factor" that utilizes a shared savings approach to incentivize utility action and lower customer bills. California has a patchwork of legislation and regulation to encourage specific energy policy goals such as renewables integration, adoption of distributed energy resources, energy efficiency, and deployment of grid-connected energy storage. The activities in both California and Florida fall under the broad umbrella of Performance Based Regulation but are quite different in terms of desired outcomes and mechanisms. Given the complexity and lack of a standard approach to PBR, the final report would be more manageable for legislators if it included an upfront section that summarizes the key PBR themes and concepts and describes what aspects of PBR the report for the legislature covers.

Conclusions on the current law regarding projected test years is outside the scope of this report

Page 9 of the draft report includes a conclusion regarding Michigan law regarding a utility's ability to file costs based on a projected test year. This topic is outside the scope of the Commission's report, as described in P.A. 341 and has not been a focus of the stakeholder conversations on PBR. Consumers Energy recommends those conclusions are removed so that the final report is more directly focused on the topic of Performance Based Ratemaking.

Pilots are the right approach for implementing PBR in Michigan

We agree with the conclusion in the draft report that there is no need at this point to fundamentally alter Michigan's Cost of Service Regulation (COSR) framework and that *"Targeted [PBR] pilots could demonstrate results that could be achieved on a large scale."* For instance, Michigan's implementation of an energy waste reduction shared savings incentive mechanism has been quite successful in achieving the policy goal of eliminating energy waste, delivering savings to customers, and providing an appropriate incentive for utilities to make non-capital investments in energy waste reduction. In

Consumers Energy's analysis of Performance Based Ratemaking, we have been intrigued by the potential of applying a similar shared savings approach to other aspects of our operations to optimize the energy system. Our assessment of more traditional performance incentive mechanisms on targeted portions of utility operations has suggested less potential for meaningful value creation. Encouraging each utility to propose specific PBR pilots allows Michigan to test a range of approaches and learn what should be deployed more broadly.

Traditional Performance Incentive Mechanisms (PIMs) are not well suited for the current utility business environment

Outside of the section on a demand response shared savings mechanism, the Performance Incentive Mechanism portion of the draft report describes in detail a range of other potential PIMs – from setting a long-term utility capital expenditure target to setting specific metrics and targets around customer satisfaction. As noted in the report, *"Michigan is entering an unprecedented period of technological innovation that is markedly affecting both public utility infrastructure and the use of energy by consumers."* Traditional PIMs are dependent upon a stable utility business environment and the regulators ability to accurately forecast the future. Neither of these conditions necessarily hold true today. For instance, a customer satisfaction performance incentive mechanism that includes a measure of a utility's average speed to answer phone calls from customers may become a barrier to utility innovation and ability to meet customer expectations if the trend towards more and more digital interactions continues. We recommend that the emphasis on traditional performance incentive mechanisms should be reduced and a discussion of the challenges of implementing traditional approaches in today's utility business environment should be included in the final report.

DTE Energy

Style Definition: Body Text

Style Definition: Footnote Text: Line spacing: single

Michigan Public Service Commission

Study of Performance Based Regulation

Per PA 341 of 2016, Sec. 6u

Table of Contents

Overall Comment
Suggest including the DTE Brattle report, which was provided to the MPSC Staff in November of 2017 as an Appendix item. Could identify the report in Appendix A when listing DTE as a Stakeholder.

Formatted: Font: 20 pt

Executive summary

In compliance with Sec. 6u of Act 341 of 2016, the Michigan Public Service Commission (MPSC) ~~hereby~~ submits ~~its~~this report to the Michigan Legislature and the Governor regarding its review of performance-based regulation (PBR) systems and potential applicability to Michigan.

Michigan's utility regulatory-structure, which developed over nearly a century, has historically worked well due to continual adjustments to the core [cost-plus-return] approach that characterizes the form of economic regulation used in Michigan. This has enabled regulated utilities to respond to a multi-decade expansion of demand for energy~~,~~ and broad changes in the economy.

Today, Michigan is entering an unprecedented period of technological innovation that is markedly affecting both public utility infrastructure and the use of energy by consumers. As large capital investments are needed for the replacement of aging utility infrastructure, technological innovation provides an opportunity to re-think the composition of the future grid~~,~~ rather than a simple like-for-like replacement strategy. Accordingly, the direction from the Michigan Legislature and Governor to prepare this study was especially timely. Under traditional regulation, electric utilities operating under MPSC jurisdiction are evaluated in terms of providing safe, reliable, and accessible energy service at reasonable rates. Through traditional cost-plus-return regulation, quality service is to be provided according to the performance requirements implicit in traditional utility regulation.

Michigan's existing electric energy system appears to be heading toward a crossroads with its aging infrastructure, changes in technology, customer preferences, and competitive pressures. In light of these trends, the question is no longer whether power systems will be transformed, but rather how these transformations will occur.[1] Drivers of change include:

- Renewable Energy Cost Reductions
- Innovations in Data, Intelligence, and System Optimization
- Energy Security, Reliability, and Resilience Goals
- Evolving Customer Engagement
- Electricity Demand Forecasts
- Increased Interactions with Other Sectors
- Local and Global Environmental Concerns over Air Emissions
- Energy Access Imperatives

[1] Zinaman, O., et al. (2015). Power Systems of the Future: A 21st Century Power Partnership Thought Leadership Report. Retrieved from: http://www.nrel.gov/docs/fy15osti/62611.pdf.

- Increasingly Diverse Participation in Power Markets
- Revenue and Investment Challenges

Traditional cost-of-service regulation allows the recovery of all prudently incurred costs plus a reasonable opportunity to earn a fair rate of return on all prudently incurred investments that remain used and useful.[2] Traditional cost-of-service regulation has included incentive mechanisms in the past in Michigan and other states. PBR is a relatively new incentive based regulatory framework to connect goals, targets, and measures to utility performance, executive compensation, and investor returns. PBR mechanisms determine utility revenue based on specific performance metrics and other non-investment factors. PBR can include multi-year rate plans (MRPs), performance incentive mechanisms (PIMs), alternative mechanisms/supplemental ~~rate mechanisms~~incentives (i.e. trackers), and price caps, which are elaborated upon ~~more thoroughly~~ in the body of this report.

PIMs, which are a component of PBR, adopt specific performance metrics, targets, or incentives to ~~effect~~facilitate desired utility performance that represent the priorities of the jurisdiction. PIMs can be specific performance metrics, targets, or incentives that lead to an increment or decrement of revenues or earnings around an authorized rate of return to strengthen performance in target areas. PIMs are distinct from PBR in that they tend to focus on specific areas of utility performance~~,~~ rather than a robust set of coordinated PBR mechanisms, which feature a regulatory framework that uses coordinated incentives and disincentives to ~~e~~affect multiple aspects of utility performance.

Well-designed PBR provides incentives and disincentives based on utility performance~~,~~ and has the potential to benefit both consumers and utilities ~~alike~~. PBR provides goals and metrics that enable utilities to forecast efficient total expenditures. Some forms of PBR, such as multi-year rate plans, increase the time between rate cases, which provides utilities with more opportunity to retain cost savings without the threat of imminent rate adjustments. However, multi-year rate plans require detailed policy objectives at the outset. PBR encourages utilities to make investments that have extended payback periods, which can shift the focus from a traditional one-year period to a longer horizon. PBR can also be designed to provide incentives and disincentives that help the utility focus on and improve customer satisfaction, safety, reliability, reduce negative environmental impacts, and meet social obligations.

PBR should not be viewed as a mechanism to avoid increases in utility rates~~,~~ since the expected level of new capital investment, even with the deployment of new technologies, will be significant over the coming years. PBR is best defined as a unique regulatory tool that uses incentives to guide innovation and cost efficiencies, which may provide utility management flexibility to choose among operational options that can lead to improved performance and customer benefits.

Commented [RS1]: This is pretty broad. What is meant by "relatively new incentive based regulatory framework", new to Michigan, new to the regulated energy utilities?

Commented [RS2]: I believe this paragraph is misplaced and should be moved to the last paragraph on this page

Commented [RS3]: Not sure how PBR enables utilites to forecast total expenditures more efficiently

Commented [RS4]: This representation suggests that MRPs are a one-way street (i.e., they provide upsides to utilities only). As indicated in the Brattle report, MRPs introduce risk, rewards and incentives into the regulatory process, not just upside earnings opportunities.

Commented [RS5]: I believe this paragraph is misplaced and should be before the current location of the PIMS paragraph

[2] The criteria for establishing a fair rate of return for public utilities is rooted in the language of the landmark United States Supreme Court cases *Bluefield Waterworks & Improvement Co v Public Service Comm of West Virginia*, 262 US 679; 43 S Ct 675; 67 L Ed 1176 (1923) and *Federal Power Comm v Hope Natural Gas Co*, 320 US 591; 64 S Ct 281; 88 L Ed 333 (1944).

Formatted: Font: Italic

Formatted: Font: Italic

This report ~~examines~~ compares PBR systems implemented across the United States and other countries~~, reviews~~ with the United Kingdom's (UK) *RIIO* (Revenues = Incentives + Innovation + Outputs) rate setting framework~~,~~ and concludes that RIIO could not be implemented in its totality in Michigan without significant cost and effort. However, there are valuable lessons that can be extracted from the study of PBR and RIIO that can be applied to Michigan's cost-of-service regulatory structure, particularly financial incentive/penalty methods to direct utilities toward replacement or improvement of the grid and new technology options that could result in a reduced combined-level of capital and operating expenses~~,~~ and subsequent lower cost-of-service than simple replacement.

The Regulatory Assistance Project (RAP) has recently joined forces with the National Renewable Energy Lab to issue a very comprehensive report (September 2017) addressing the latest U.S. and global experience with respect to PBR. The report is timely ~~relative to~~ for the preparation of this report due to its detailed analysis of new regulatory trends involving the use of PIMs layered over Michigan's traditional regulatory structure to achieve a diverse array of targeted policy outcomes. Due to its relevance, the RAP/NREL report is attached in its entirety as an appendix to this MPSC report.

Broad use of PIMs is a relatively new concept with little real-world experience among regulatory jurisdictions across the country. Nevertheless, ~~T~~the results of the MPSC's initial study on PBR indicates there may be value to Michigan by using several specific PIMs. Targeted pilots could demonstrate results that could be achieved on a larger scale. In this manner, the MPSC can determine whether or not the PIM approach is able to meaningfully achieve the multi-faceted policy outcomes delineated in Sec. 6u of PA 341. PIMs could be designed to focus on elevating customer satisfaction, safety, reliability, environmental impact, or social obligations.~~,~~ ~~h~~However, simultaneously addressing all five goals at once is ~~a tall order as~~ challenging since each goal needs to be refined with incentive, performance criteria, and metrics with a sense of the benefits, costs, and cost savings involved in moving forward with each. Should the Michigan Legislature and Governor choose to pursue additional policies, the MPSC can explore other specific objectives~~,~~ such as the use of PIMs to expand the level of distributed energy resources in Michigan. Should pilots be undertaken, the MPSC recommends a regulatory process with a strong stakeholder focus~~,~~ as is the case with the UK's RIIO incentive regulation system.

Commented [RS6]: How would a state focus on this objective be integrated into a utility IRP, different than we do now?

The MPSC was also charged by Sec. 6u of PA 341 to evaluate methods to increase the time between rate cases with a view to encourage utility investments having extended payback periods and that promote cost efficiency. Regarding this issue, multi-year rate cases have been used in other state jurisdictions as a primary

means of achieving these goals. The MPSC could test whether PIMs can be used to provide incentives to extend the period between general rate cases. Other states have used diverse and targeted performance mechanisms allowing for both positive incentives (rewards for good performance) and negative incentives (for unacceptable performance). At a minimum, such PIMs would address known potential risks arising out of multi-year rate setting periods, such as reduced customer service and service quality. Prudent PBR design in the U.K. and other ~~U.S.~~ States has recognized the need for a symmetric mix of incentives, both positive and negative, to optimize utility performance.

A related objective delineated by Sec. 6u of PA 341 is to evaluate the use of profit sharing mechanisms intended to share cost efficiencies between ratepayers and stockholders. These approaches are typically integral to PBR approaches using multi-year price control periods (e.g. the UK's RPI-X and RIIO). Fortunately, PBR includes a robust set of regulatory mechanisms that may have the potential to achieve *targeted* cost-efficiency through revenue sharing. Again, the MPSC would be receptive to utility pilot proposals that address this approach. As always with PBR, it must be carefully designed to achieve cost control objectives and to discourage undesirable outcomes. This report's assessment of the U.K.'s RIIO mechanism concludes that there are context variables that are different in Michigan's regulatory environment that renders a RIIO type approach in Michigan impractical in the short run. However, there ~~could be promise~~ may be merit in certain applications of PIMs that could complement cost-of-service regulation in Michigan~~I~~ and result in cost-effective balancing of utility capital and operation expenses that take advantage of new technologies and ratepayers' desire to invest in advanced consumer-side resources.

PBR pilot initiatives would not be a stand-alone process. The Commission is interested in the integration of ongoing utility efforts related to distribution system planning with targeted incentive pilots. In addition, the new Integrated Resource Planning (IRP) process that results from the passage and enactment of Public Act 341 of 2016 and related utility filings will have substantial long-range planning impact with respect to generation technologies~~,~~ and with respect to demand-side options such as energy efficiency, load-control, demand-response programs, and rate design (to the extent rate design is structured to meet demand-side resource goals). The MPSC intends to treat all PBR pilot and long-range planning initiatives with a holistic approach.

This report finds that the U.K.'s RIIO mechanism involves a context and regulator apparatus that developed over many years. Recreating a full RIIO type approach in Michigan would be a monumental undertaking involving a significant amount of legislation, regulatory resources, and stakeholder support for a multi-year timeframe~~.~~ ~~That~~ which may not be practical. However, discrete goals can be prioritized and application of PIMs could result in policy makers' goals for more cost-effective, reliable, and safe utility service that is environmentally responsible and that results in superior customer satisfaction.

Formatted: Body Text

Commented [RS7]: Identify which specific regulatory mechanisms address this?

Commented [RS8]: This would apply to all initiatives and not just for a pilot…???

Commented [RS9]: See comment above re: use of the word pilot

Report Origins and Purpose

This Commission report responds to the language of Act 341 of 2016 (December 21, 2016), which amended Act 3 of 1939, to undertake a study pertaining to Performance Based Regulation (PBR), and to report on its findings with written recommendations (Sec. 6u). As required by the statute, this report is filed with the legislature and the governor within one year after the effective date of Act 341, ~~being~~ which is April 20, 2018.

Sec. 6u (1) defined performance based regulation, in part, as a regulatory system in which a utility's authorized rate of return would depend on the utility achieving targeted policy outcomes. Regulatory mechanisms having targeted objectives are commonly referred to as PIMs.

Sec. 6u (2) recognized that PBR includes some regulatory models that are broad-based alternatives to traditional cost-plus-return regulation, which is also known as cost-of-service (COS) regulation. Thus, the statute expanded the scope of review, by explicitly requiring the Commission to study the United Kingdom's (UK's) RIIO [revenue = incentive, + innovation + outputs) model, which is an incentive regulation model that is highly developed~~,~~ with significantly complex structure. The statute did not limit the study to the RIIO model~~,~~ should the Commission find that other models implemented in various states or countries were of value.

Sec. 6u (3) established four specific factors associated with PBR systems that are to be evaluated within the study.

1. Methods for estimating revenue needed…during a multi-year pricing period that uses forecasts of efficient total expenditures (i.e. TOTEX as used in the RIIO model);
2. Methods to increase the time between rate cases-…to provide the utility with opportunity to retain cost savings…and to encourage investments that have extended payback periods;
3. Options (i.e. mechanisms) for establishing incentives and penalties that pertain to customer satisfaction, safety, reliability, environmental impact, and social obligations; and,
4. Profit sharing provisions that can spread efficiency gains among consumers and utility stockholders and reduce the degree of downside risk associated with innovation.

All four factors were evaluated, and are addressed in within the various sections of this report.

Importantly, Sec. 6u did not create any new or revised authority impacting the Commission's ability to approve PBR. However, Sec. 6u (5) explicitly noted that the Sec. 6u does not limit the Commission's *existing* authority to authorize PBR.

1. Economic regulation of public utilities

Commented [RS10]: I don't believe this acronym has been previously introduced.

in Michigan

Both ~~T~~the MPSC~~ichigan Public Service Commission~~ as a regulatory body~~,~~ and its jurisdiction over public utilities~~,~~ has its origin in Act 3 of 1939. It is the Commission's core enabling legislation and defines the scope of its legal authority to approve utility rates and services.

Both Act 419 of 1919, and Act 9 of 1929, preceded Act 3. Act 419 created the Michigan Public Utilities Commission, having jurisdiction over electric, manufactured gas and power. Act 9 expanded the MPUC's jurisdiction to include rate authority over amended natural gas purchase contracts~~,~~ and the transmission and distribution of natural gas within Michigan. Act 3 abolished the Public Utilities Commission~~,~~ by replacing it with the Public Service Commission~~,~~ and consolidated the Commission's regulatory authority over public utilities. The Act granted broad ratemaking authority to the Commission.

There have been several major and minor amendments to Act 3 over the years to define the structure of utility regulation in Michigan, to specifically delineate the Commission's authority, and to define procedures and processes for approving rate applications.

Table 1: Economic Regulation of Public Utility Table

YEAR	PA #	TITLE
1919	419	Michigan Public Utilities Commission
1929	9	Natural Gas
1939	3	Michigan Public Service Commission
1982	304	Amended Act 3 of 1939
2000	141	Customer Choice and Electricity Reliability Act
2008	286	Amended Act 3 of 1939
2008	295	Clean and Renewable and Efficient Energy Act
2016	341	Amended Act 3 of 1939
2016	342	Amended Act 295 of 2008

With regard to the processing of utility general rate requests, historical test-years had dominated the rate setting process in Michigan for decades. Following the enactment of Act 3 of 1939, utility rate increases were determined with reference to a~~n~~ historical test-year, being a *pro forma* calculation of revenue requirements using the requesting utility's books and records as a cost foundation (pro forma means based on historical costs, as adjusted for non-recurring events). Approved revenues included a return on the utility's net plant, (where net plant consists of original cost, less accumulated depreciation). A~~n~~ historical test-year did allow for

the use of projected sales levels to ensure that the final rates for the various rate schedules fairly recovered a utility's approved revenue requirement. The effect is that for over 60 years, Michigan's regulatory paradigm of cost-of-service regulation was implemented within the context of a~~n~~ historical test-year.

Through Act 286 of 2008, Michigan replaced its longstanding tradition of using an historical test-year in implementing cost-of-service regulation. Formerly, Act 3 did not specify the type of test-year to be used by the Commission. However, Act 286 explicitly introduced the option for regulated utilities to file their rate request using projected costs and revenues for a future consecutive 12-month period (i.e. a *fully projected* test year, as opposed to the limited adjustments to actual costs and revenues made in a pro forma calculation). It should be noted that the filing of a fully projected test-year by utilities was not a requirement~~, in that~~ since Act 286 continued to allow the filing of rate requests based upon a utility's historical costs and revenues. Significantly, no utility has filed a rate case with a~~n~~ historical test year since the passage of Act 286 in 2008. In addition, utilities are allowed to file a projected rate~~-~~ case every year, ~~and this~~ which has recently become the norm in Michigan for the two largest utilities, DTE and Consumers Energy.

Commented [RS11]: "Filed" what?

Michigan's use of a fully projected test-year in setting future rates constitutes a significant departure from a~~n~~ historical test year~~,~~ with both pros and cons.

On the plus side, the use of projected costs and revenues~~, as opposed to~~ instead of a pro-forma calculation, better informs the Commission with respect to short-term utility capital-planning. This is particularly important when year-over-year capital investment in Michigan is seeing accelerating investment in infrastructure replacement~~,~~ and new technology projects (such as automated meter infrastructure (AMI) and smart grid). Thus, in the recent past, an increasing portion of utility rate increases are directly related to capital investment programs~~,~~ that reflect~~ing~~ a combination of low inflation (reducing the rate of increase in operating expenses) and major new infrastructure investment.

However, there are ~~important~~ salient cons related to the use of projected costs and revenues in the context of cost-of-service regulation. Use of projected costs~~, as opposed to~~ instead of historical costs~~, in~~ for determining a utility's revenue deficiency can blunt the regulatory lag associated with the strict use of actual (historical) costs and revenues to set rates. Such regulatory lag is considered a critical and positive feature of traditional cost-of service regulation, thereby creating strong economic incentives for utilities to pursue cost efficiencies.

2. The UK's RIIO (revenues-incentives-inputs-outputs) mechanism

Per Sec. 6u of Act 341, the MPSC~~ichigan Public Service Commission~~ has evaluated the ~~United Kingdom's (~~UK's~~)~~ RIIO performance-based regulation model and its suitability for duplication in Michigan, in whole, or in part, and with respect to any learnings that could have application in Michigan if applied as an adjunct to its current cost-of-service based regulation structure. This review is attached as appendix B of the Commission's study.

3. Survey of key incentive/PBR mechanisms and associated implementation details in the United States

Michigan continues to employ traditional COS methods for regulating utilities, but has utilized incentive mechanisms, alternative methods, or performance metrics on a limited basis over the past 30 years. Although Michigan's utility regulatory past has not featured a formal PBR structure, Michigan has featured variations of performance mechanisms designed to achieve improved reliability, quality, and service. An ongoing issue for policy makers addressing PBR/incentive/penalty systems has been determining whether incentives should be applied to all phases of rates in a case or on a goal specific basis. Regulators must then decide how to value those incentives and penalties associated with the chosen design based on specific goals and metrics. This report examined Michigan's past incentive mechanisms as well as implementation of PBR related mechanisms in the United States and other countries. This review of incentive mechanisms can be found in Appendix C.

Commented [RS12]: The only state that's reviewed in Appedix C is New York, which has a program "in its infancy". Examples provided should be more robust. Could use DTE's Brattle report as a Appendix for reference purposes. **Since this is the executive summary of the report it would be of great benefit to provide a lot more information/or more of a summary of what PBR mechanisms are in place in the US and other countries; including a discussion around the purpose and goals of why those mechanisms were implemented and what those mechanisms are intended to achieve.**

4. Cost-of-service regulation with added targeted-incentives

A broad approach to PBR in Michigan might look like cost-cap regulation to limit cost increases over time with specific PIMs to encourage a set of desired activities such as EE, DR and perhaps EV integration. Broad use of PIMs is a relatively new concept with little real-world experience among regulatory jurisdictions across the country. However, New York is an exception~~, being an example of a state at the leading~~ since it recently ~~edge of~~implemented PBR ~~implementation~~ in 2016~~the U.S~~. The results of the MPSC's initial study of PBR indicates there may be value to Michigan of moving cautiously with marginal PBR additions built on the foundation of Michigan's successful COS regulation that has been refined over many years.

Commented [RS13]: Who would determine what is desired, and how?

PBR can elevate customer satisfaction, safety, reliability, environmental impact, and social obligations with specific PIMs. However, simultaneously addressing all five goals at once is a ~~tall order as~~ challenge since each goal needs to be refined with incentive, performance criteria, and metrics with a sense of the benefits, costs and cost savings involved in moving forward with each. More narrowly, the MPSC may explore other specific objectives~~,~~ such as the use of PIMs to integrate distributed energy resources or electrical vehicles cost- effectively. Each effort would require stakeholder and public input and vetting so that ratepayers understand what they are being asked to pay for and why it is valuable.

Targeted pilots could demonstrate results that could be achieved on a larger scale. In this manner, the MPSC could determine whether or not the PIM approach is able to meaningfully achieve the multi-faceted policy outcomes delineated in Sec. 6u of PA 341. Should pilots be undertaken, the MPSC recommends a regulatory process with a strong stakeholder focus~~, as is case with~~ similar to the UK's RIIO incentive regulation system.

With these general caveats, the Commission observes that the changing power sector -- including penetration of new disruptive technologies such as decentralized supply, growth of demand side resources, increasing intelligence and digitalization of networks -- will change what regulation looks like in the 21st century. PBR both to control costs and integrate these new technologies into Michigan's grid may prove a valuable concept in the future path for Michigan's utility regulation. PIMs~~erformance Incentive Mechanisms~~ that may work for Michigan are further discussed in Appendix D.

PIM Options

1. Demand Response PIM

New energy legislation in Michigan requires the Commission to promote voluntary load management programs such as demand response programs, time-of-use and peak pricing, and air conditioner remote shut off. Additionally, it requires certain utility companies to offer Commission-approved demand response programs. A PIM could be used as an implementation mechanism for some or most of these requirements and provide guidance to utilities on achieving successful demand response program participation to meet MPSC-set performance criteria.

Regulators can use generic or utility-specific economic and engineering studies within the context of a utility's Integrated Resource Plan (IRP) to set targets. Although distinct from one another, ~~E~~energy efficiency and demand response potential studies can separately identify the amount of investments that would be cost-effective for the utility to make. These studies can help regulators identify and define specific resource investment targets and costs.[3]

Metrics associated with demand response depend in part on the specific goals to be achieved. Demand response can be used for peak load reduction, load reduction to avoid targeted infrastructure investment, customer engagement, ancillary services to accommodate variations in net load, etc. Metrics should reflect whether or not the underlying policy goal is being met; e.g., whether peak demand has decreased over the prior year.[4]

2. Profit-sharing PIM for DR

By January 1, 2021, PA 341 requires the MPSC to authorize a shared savings

Commented [RS14]: This will vary each year based on a number of factors including weather, customer mix, EE adoption, etc? Recommend providing another example.

Commented [RS15]: We're a little confused by this concept as DR avoids cost it does not create "profit".

3 Whited, M., Woolf, T., and Napoleon, A. (2015). Utility Performance Mechanisms: A Handbook for Regulators. Synapse Energy Eco nomics. Retrieved from: http://www.synapse-energy.com/sites/default,files/Utility%20Performance%20Incentive%20Mechanisms%2014-098_0.pdf, p.37

4 Whited, M., Woolf, T., and Napoleon, A. (2015). Utility Performance Mechanisms: A Handbook for Regulators. Synapse Energy Economics . Retrieved from: http://www.synapse-energy.com/sites/default,files/Utility%20Performance%20Incentive%20Mechanisms%2014-098_0.pdf

mechanism for an electric utility to the extent the utility has not otherwise capitalized the costs of the EWR, conservation, demand reduction, and other waste reduction measures as follows:

- A savings of 1 percent to 1.25 percent of the utility's total annual weather-adjusted retail sales in megawatt hours in the previous calendar year equals a shared savings incentive of 15 percent of the net benefits validated as a result of the programs implemented by the electric utility related to EWR, conservation, demand reduction, and other waste reduction, but not to exceed 20 percent of the utility's expenditures associated with implementing EWR programs for the calendar year in which the shared savings mechanism was authorized. The bill details how the MPSC is to determine the net benefits.
- At least 1.25 percent to 1.5 percent savings equals a shared savings incentive of 17.5 percent of the net benefits, with a cap of at 22.5 percent of expenditures.
- Greater than 1.5 percent savings equals a shared savings incentive of 20 percent of the net benefits, with a cap of 25 percent of expenditures.[5]

Although not an entirely new concept from what exists already, ~~A~~a similar shared net benefits scheme could be developed for demand response programs that save the utility and customers' expenditures on peak energy supply costs including the costs of fuel, peaking capacity, avoided transmission and distribution plant costs. The potential for savings from demand response programs administered by the utilities is particularly strong if specific plant, distribution and transmission investments can be avoided through demand-response. A shared savings mechanism ideally would provide sufficient benefit to the utility that the utility prefers demand response solutions where feasible to traditional capital investments in plant. The savings shared with customers must be fair so there is some form of joint savings from innovative cost-effective implementation.

With a shared net-benefit incentive structure, the utility shares with ratepayers in the benefits associated with, and identified from, its performance and the metric achieved. This can mean sharing in financial benefits between the utility and ratepayers. A shared net benefits approach needs to be carefully designed and implemented to clearly identify the shared benefits, ensure the utility appropriately controls costs, and that the mechanism cannot be gamed. Implementation of shared savings schemes can be difficult because the focus on evaluation, measurement, and verification (EM&V), the concept of shared net-benefit's inherent imprecision, and translation to dollars can negatively impact a utility-regulatory-ratepayer relationship. This approach relies upon accurate benefit calculations through evaluation and measurement, and a clear EM&V plan based on objective metrics.

3. Positive and Negative PIMs for Optimizing CAPEX and OPEX

If a good estimate of overall capital expenditures (CAPEX) and operational expenditures (OPEX) costs and timeframe can be set in advance through a formal proceeding, then it is possible to use a carefully designed PIM mechanism to provide incentives and penalties for utility optimization of capital investment and operational expenses. Such a CAPEX/OPEX mechanism would provide incentives

Formatted: Right: 0", Space Before: 6 pt, Line spacing: single

Commented [RS16]: While PA 341 allows for demand reduction inclusion, PA 342 still imits the ability of EWR to count load management in Sec. 77 subsection 2) If an electric provider uses load management to achieve energy savings under its energy waste reduction plan, the minimum energy savings required under subsection (1) shall be adjusted by an amount such that the ratio of the minimum energy savings to the sum of actual expenditures for implementing its approved energy waste reduction plan and the load management expenditures remains constant.

Commented [RS17]: This mechanism is currently the method in which DR programs operate today. The discount provided to the customers in the lower rate for interruptible products is due to the benefit received by the company for lower capacity and power purchases as well as avoided T+D, plant ,etc. This can act as a mechanism for new program development, but it is not a new concept

5 Michigan Public Service Commission. (2017). Energy Law Updates. Retrieved from: http://www.michigan.gov/mpsc/0,4639,7-159-80741---,00.html

for cost savings and penalties for cost overruns.

While such a CAPEX/OPEX PIM could stand alone, a PIM for capital expenditures could also be built into a cost-cap regime. Either way, the "new" capital expenditures would need to be added into the revenue requirement cap and translated to a rate cap adder for additional capital expenditures beyond those involved in business-as-usual operations. A focal point of such a system is to ensure that business-as-usual capital expenditures are counted only once in either the revenue requirement or the capital expenditure adder to avoid double recovery of these costs. Beyond that, the critical element that would require substantial effort up front is to establish a reasonable CAPEX budget and timeframe on which to calculate the capital expenditure adder (or rider) that savings would be measured from using OPEX judiciously. This would involve a substantial initial effort by the regulators and utility to determine a reasonable capital expenditure plan over some time frame such as ~~3, 5 or 8~~three, five, or eight years based upon a proposed and adjudicated capital investment plan.

From a capital expenditure plan and timeframe, a series of incentives could be designed to reward the utility for implementation under budget or ahead of schedule, and penalize the utility with disallowances of some percentage of costs for delays or over-budget projects. As an example, if a utility completes a set of distribution upgrades on time with savings of 10 percent from the project budget, the utility could be allowed to keep half of those savings and half could be "returned" to ratepayers. While the symmetry of such a proposal may appear elegant, the current system results in utilities often keeping 100 percent of any saving from a future test year, so the utilities may not be motivated to share these saving with ratepayers.

If capital projects are managed to miss timeframes or run over budget, then a penalty of disallowing some utility recovery of expense or profit might be imposed. So, if a set of distribution upgrades is completed 10 percent over budget, then the utility may only be allowed to recover half of the cost overrun from ratepayers~~,~~ and utility shareholders would be expected to absorb half of the cost overruns. Again, while the symmetry of this may appear elegant, it is worth noting that the risk of cost overruns is typically placed on ratepayers under traditional regulation (unless a prudence review finds utility imprudence). For this reason, utilities likely would oppose any disallowances for cost overruns.

The benefits to the utility of sharing in savings from optimizing capital and operation costs is that they may be able to achieve long-term capital investment certainty over a specified time frame such as three, five, or eight~~3, 5, or 8~~ years. They also could share in benefits if the utility can use OPEX to operate more efficiently. With that certainty, utility management can focus on project management and implementation and assessing the least costly options to address known system deficiencies.

4. Output goals: Customer Satisfaction

PBR can focus on improving customer satisfaction and can also promote customer empowerment. Customer empowerment is defined here as the ability of customers to provide feedback on utility service, adopt demand-side energy options, and the

ability to see publicly reported performance data on their utility.

Case studies from around the world indicate that paying attention to customer satisfaction is an important indicator of utility performance. ~~And~~ When done well, these metrics can help transform the utility business model by focusing utility attention on integrating customers. Focus on customer satisfaction can range from public reporting of customer satisfaction rankings, to metrics focused on utility customer empowerment, to public reporting scorecards.

5. Output goals: Safety

PIMs for safety generally focus on employee and public safety goals. These are usually to require a high and improving level of both employee and public safety. Metrics in this area are intended to provide indicators of incidents, injuries, and fatalities associated with the contact with the electric and gas system, and adequacy of response to emergency situations.[6]

6. Output goals: Reliability

Setting reliability goals, performance criteria, or metrics is universally recognized as desirable since it effectuates one of the central public utility service goals: safe and reliable service at just and reasonable prices. That said, establishing the precise incentive or penalties, performance criteria, and metrics can be difficult. ~~Reliability is good but too much reliability is expensive.~~

Commented [RS18]: This is an incredible statement and is very broad. Some reliability improvement comes from cost, but other reliability improvements are low to no cost. Don't think that first responders or critical medical customers would agree that too much reliability can be too expensive.

~~7.~~ Output goals: Environmental Impact

Formatted: Body Text, Space Before: 0 pt, No bullets or numbering, Don't keep with next, Don't keep lines together

In Michigan, a transition to a modern and clean electrical sector enjoys recognition across a broad spectrum of energy sector stakeholders. Equally significant is Michigan's reputation as a technological and industrial innovator. The breadth of advanced energy technologies being developed and deployed makes tracking any one set of technologies a significant challenge. ~~But~~ However, this does not mean that regulators cannot set up accommodating utilities structures to integrate advanced technologies into Michigan's grid planning and distribution investments. In fact, this is imperative where new technologies present the opportunity to allow Michigan ratepayers to improve the quality of their own or distribution service overall and present new least-cost solutions.

The challenge is to set up a flexible performance based structure that encourages utilities, third-party providers, and ratepayers to move toward environmentally beneficial and least-cost solutions across the grid, third-party, customer benefit, and cost spaces. With advanced technologies entering the market with regularity, it is almost impossible to determine cost-effectiveness in advance. ~~But~~ However, regulatory structures can create "facilitated competition" space where utilities are rewarded for acquiring competitively bid services that reduce overall system costs. Most advanced customer-site resources (excepting distributed fossil generators) will have an environmentally beneficial effect, so it is possible to focus on achieving the least-cost set of distributed solutions and comparing those to a set of grid upgrade costs.

6 id.

~~8.~~7. Output goals: Social Obligations

It is important for the regulator to be able to assess impact on low-income and vulnerable customers, and to correspondingly assess utility response to LMI impacts. PBR and specific PIMs focused on these areas can help the regulator, the utility, and other stakeholders address and empower this segment of the population. The primary question with PBR schemes that is often raised by low-income and other consumer advocates, is how to craft incentives that ~~force~~ encourage meaningful utility action in exchange for reasonable, but not excessive, revenues.[7] There are two components to metrics in this area: 1) protection of low-income customers and attention to payment method options, disconnection rates, prepayment meters, etc., and 2) customer empowerment which enables vulnerable customers to pro-actively alleviate their consumption and interact with the grid.

~~9.~~8. Multi-year rate plans

The MPSC was also charged by law to evaluate methods to increase the time between rate cases with a view to encourage utility investments having extended payback periods and that promote cost efficiency. The MPSC could test whether PIMs can be used to extend the period between general rate~~-~~ cases. In doing so, it would be necessary to utilize a diverse set of target performance mechanisms allowing for both positive incentives (rewards for good performance) and negative incentives (for unacceptable performance). At a minimum, such PIMs would address known potential issues arising out of multi-year rate setting periods, such as reduced customer service and service quality that are well established as issues in many other jurisdictions using multi-year rate plans.

Prudent PBR design in the U.K. and other U.S. States has recognized the need for a symmetric mix of incentives, both positive and negative, to improve utility performance. The mixture of incentives that can enhance well-established and time tested traditional regulation is different for the priorities of each jurisdiction.

~~10.~~9. Public Reporting Mechanisms

Public reporting obligations, such as tracking specific performance criteria and metrics that are important for Michigan's regulatory goals, are a way to build experience with performance metrics prior to attaching rewards or penalties. The benefit of a public report-only metric is that regulators and utilities can implement performance metrics without attaching financial awards to gain experience and training as the performance metrics are fine-tuned. The establishment of a reporting obligation communicates the importance of that performance criteria and metric to the utility, stakeholders and the public.

The requirement that utilities track, analyze, and report specific information can encourage different utility behavior, be precedent to establishing incentives attached to some or all of the metrics, and provide transparency which may allow other stakeholders to interact in more predictable ways with the utility that are important for supporting third-party energy service businesses and customer

7 Thompson, A. (2016). Protecting Low-Income Ratepayers as the Electricity System Evolves. Energy Bar Association. Retrieved from: http://eba-net.org/sites/default/files/18-265-305-Thompson%20-%20FINAL_0.pdf

investments in customer side resources. Some of the above-mentioned PIMs could first be instituted as public reporting only measures. Additional options Michigan might consider for a public tracking metric include progress on green pricing programs and on-bill financing.

a. Green Pricing:

Under Public Act 342, electric utilities must offer customers the option to participate in a voluntary green pricing program. Under this law, customers can specify the amount of electricity provided to the customer that will be generated from renewable energy. Utilities are to submit their programs to the Commission for review in the fall of 2017, for review of 1) whether different customer preferences or objectives are met, 2) how program costs are calculated, 3) how much of fees go to marketing and administration, and 4) whether the program is based on cost-of-service principles. A public tracking metric or metrics, based on survey results of customers enrolled in the green pricing programs, could help the Commission and utilities identify whether customer objectives and preferences are being met, and make apparent clarifications or improvements.

b. On-Bill Financing:

Under the new energy law, rate-regulated utilities may offer residential customers the option to finance home energy improvement projects, and the ability to pay off the costs of those projects on their utility bill. The Commission is to work with utilities and other interested parties to create a framework for "on-bill financing" programs. A public tracking metric could be developed as part of this framework to enable the Commission and utilities to track the number of improvement projects that use on-bill financing, customer savings, and feedback from customers on various the utility offerings and implementation of this option.

5. Multi-year rate cases as a PBR approach

Multi-year rate plans, a first effort at PBR, were first used in in the 1980s for railroads, telecommunications, and other industries facing competition and changing demand, and were introduced for U.S. electric utilities in the 1990s. The purpose of these plans was to motivate efficient operations and thus low-cost service while maintaining reliability and customer service. Traditional cost-of-service regulation essentially assumes that sales growth is a predictor of cost growth. To address this, PBR is often explicit in allowing utilities to earn higher revenue if they become more efficient by cutting cost and continuing to provide quality service.[8] The PBR construct to control costs is to set utility revenue over a

8 Regulatory Assistance Project. (2000). Performance-Based Regulation for Distribution Utilities. Montpelier, VT: The Regulatory Assistance Project. Retrieved from: http://www.raponline.org/wp-content/uploads/2016/05/rap-performancebasedregulationfordistributionutilities-2000-12.pdf, p. 35.

number of years and then allow the utility to retain all or some portion of cost savings resulting from efficiency gains. The Commission has examined multi-year rate plans in other states as required. Please refer to appendix E.

Legal Considerations for implementing Multi-Year Rate Plans in Michigan

PBR over multiple years should be based on projections of costs, revenues, inflation and productivity in the future. Current law provides only for a test of 12-month period which stretches about 18 months[9] from the time of filing into the future.

PBR focused on cost control often takes the form of a multi-year rate plan (MRP), with various mechanisms: productivity indexes, attrition relief mechanisms (ARMs), earning sharing mechanisms (ESMs) and ~~performance incentive mechanisms (~~PIMs~~)s~~. Without those mechanisms being in place, and without earnings sharing mechanisms, multi-year rate plans could fail to achieve cost-control incentives and fail to encourage increased utility productivity.[10]

6. Potential applicability of broad-based PBR in Michigan

a. RIIO as applied in the UK would not be appropriate for Michigan

The RIIO incentive structure now in place in the UK is an evolution from the regulatory framework called RPI-X that was in place before it~~, called RPI-X~~. RPI-X was itself an incentive-based regulatory scheme~~,~~ that was focused primarily on price and revenue caps. RIIO is a regulatory evolution ~~building~~ built on experience and lessons learned from many years of utilizing incentive regulation in the UK's utility sector. UK regulators made improvements over the course of many years to result in the broad-based incentive PBR model now in place. The multi-year regulatory review prior to finalization of RIIO, as well as its incremental implementation, were critical to building stakeholder support for the reforms.[11] The prior projections of efficient future costs were an essential element of RIIO and would require a modeling and economic projection ability beyond that

[9] An example of a projected test year is DTE Electric's latest rate case, MPSC Case No. 18255, which was filed in April 2017 for the 12 month period ending October 31, 2018.
[10] https://emp.lbl.gov/sites/all/files/lbnl-1004130.pdf
[11] Guarini Center's (NYU/Law) January 2015 report to the New York Public Service Commission.

Formatted: Font: (Default) Arial, 7 pt
Formatted: Font: 7 pt

currently in use in setting rates in any U.S. jurisdiction. If Michigan were to move toward a similarly ambitious performance incentive regime, then it would likely require a similar regulatory review and stakeholder engagement over a multi-year timeframe.

Though the comprehensive RIIO process in full form is likely unrealistic for Michigan to pursue, there are some lessons learned from RIIO that could be applicable here. First, the UK regulators' initial focus on cost control resulted in regulated firms cutting back on customer service, reliability, and service quality to achieve maximum cost savings. Regulators corrected this by implementing incentive mechanisms that focused on customer service and service quality. Second, UK regulators learned that cost cap regulation was not producing the kinds of consumer savings they desired and implemented shared-savings mechanisms to balance utility and customer benefit. These types of incentive design features are ones that Michigan could consider in a PBR scheme, even if not as broad-based a regulator apparatus as RIIO.

In undertaking RIIO, UK regulators recognized the need for substantial new capital investment in the utility system to replace aging infrastructure and maintain reliability and grid services. They also recognized that the investment in the existing grid could not consist simply of a one-for-one replacement of retiring assets if decarbonization goals were going to be met. Thus, the regulator set innovation as one of the primary goals for incentives in RIIO. Several innovation rewards were created including competitive awards for innovative proposals to improve environmental performance of distribution networks and an annual competition to fund up to 90% of costs for large-scale projects that demonstrate environmental benefits. There are a variety of approaches that Michigan could take from RIIO in this area~~,~~ including PIMs (incremental increase in return on base revenue) or monetary rewards for innovative projects or for replacing aging infrastructure with new, decentralized technologies. Michigan's traditional leadership in the automobile industry may also lend itself to innovation in integration platforms for utility- or aggregator- models for EV charging linked to modern distribution system investments.

As discussed earlier, the differences between the electricity industry structure in the UK and Michigan could make some of the UK approaches difficult to replicate. The unbundled nature of the industry in the UK contributes to the difficulty regulators there face in achieving environmental goals. This structure means that UK regulators oversee network distribution companies, but have little authority over the sources of electricity supply~~,~~ or how end-use consumers behave. As a result, much of RIIO's environmental incentives are focused on encouraging network companies to take measures that reduce environmental impacts, but does not hold network companies accountable for a low-carbon transition. This is one potential shortcoming that need not exist in vertically integrated states like Michigan where utilities have more direct control over the generation fleet and ~~therefore~~ by extension the environmental attributes associated with electricity supply.

b. Pros and Cons of different approaches and

conditions for successful implementation

Stand-alone PIMs could be legally sound tools to direct utilities as long as rates remain just and reasonable. In general, PIMs are not explicitly barred by Michigan law. For instance, revenue decoupling mechanisms (RDMs) are currently available in the gas context ~~currently,~~ and for electric utilities with fewer than one million customers, as specified by legislation.

Michigan's legal framework includes Michigan's Clean and Renewable Energy and Energy Waste Reduction Act, enacted by Public Act 342, amending Act 295 of 2008, for instance. Efforts beyond these could result in pushback if a PIM was developed, which was not universally well received~~,~~ and not explicitly written into the law.

Some ~~PIMs~~ alternative mechansims/supplemental incentives, such as cost trackers, are already a part of the regulatory framework. Trackers have not been a preferred regulatory tool in Michigan recently. Trackers can reduce regulatory lag and allow a utility to pass through costs, but they can also enable utilities to manage and control costs. The Commission has used trackers in the past, however, to reduce the utility's current disincentive to reduce energy consumption. The ability to come back every 12 months for a rate case has reduced the MPSC's consideration of trackers~~, as~~ since regulatory lag is lessened.

Certain trackers, such as uncollectible expense equalization mechanisms, have been tested at the Court of Appeals and deemed legal under Michigan's regulatory framework~~,~~ even if they may have fallen out of favor. *In re Application of Consumers Energy Co.*, 279 Mich. App. 180, 756 N.W.2d 253 (2008). ~~And~~Also, power supply cost recovery (PSCR) and gas cost recovery (GCR) cases are pass through costs, which are estimated in a plan and reconciled as a matter of law. It is not retroactive ratemaking, but a deferred expense. ~~So, trackers~~Therefore, if carefully crafted and for the right purpose, trackers could still be used under the current regulatory framework. The challenge would be to incentivize the right type of behavior.

7. Conclusions/Recommendations

The majority of states in the U.S.~~,~~ including Michigan~~,~~ have retained a traditional COS~~cost-of-service~~ [cost-plus ratemaking] structure. This structure has developed into a complex system that, similar to the UK's regulatory structure, has also evolved over time to meet difficult challenges. These challenges have encompassed such issues as changing economic conditions, the growth of wholesale energy markets, aging infrastructure, and evolving consumer needs.

More recently, the introduction of advanced technologies in the utility industry, an unprecedented potential for expanding renewable and distributed generation resources, and an increased focus on reliability and grid resilience have taken on importance. In grappling with these challenges, particularly the more recent and emerging issues, some states have experimented with various levels of implementation of ~~Performance Based Regulation (~~PBR~~)~~. ~~Significantly,~~ Eeven those states that are ~~deeply~~ implementing PBR concepts, are retaining cost-of-

service regulation as a foundation.

A focal point for PBR in some jurisdictions is focused on cost control through a multi-year rate case. Clearly, states otherwise experiencing closely-spaced filing of general rate cases by their regulated utilities will see a reduction in the rate case cycles, and hopefully streamlined regulatory administration, as a result of the multi-year rate case approach. What is not clear is whether a multi-year rate case approach can be a primary means to achieving select output-based goals if such cost-efficient utility investments have extended payback periods. An approach to the review of long-term cost investments that can be married to multi-year rate plans to pursue both goals of short-term cost management and long-term capital investment cost management while providing incentives for innovative cost reductions is the challenge

Although the Commission is open to new approaches in general rate-cases encompassing multiple 12-month future periods, expanding Michigan's traditional rate cases (that use ex ante reviews) into multi-year projected rate-cases would involve unique challenges making the development of the regulatory model and its implementation critical. The MPSC should consider methods to adopt multi-year rate plans into the overall regulatory framework, as the participants in the PBR Collaborative note that MRPs are an important component of most PBRs in place in the U.S. It is also a core element of the U.K.'s RIIO plan. The MPSC should also recognize that MRPs are one component of a broader and integrated PBR framework. That is, an MRP will serve to advance some but not all goals. The development of safeguards was key to the evolutionary development of the UK's broad-based incentive regulation structure and is thus part of the foundational PBR structure of RIIO.

Built-in RIIO safeguards include: (1) the filing of extensive business plans reflecting the entire multi-year period; (2) total expenditure benchmarking that ties projected costs to economic efficiency (x-efficiency) and industry best practices; (3) symmetric cost-sharing mechanisms for both capital and operating expenditures that have multi-level sharing factors; (4) uncertainty mechanisms that reduce forecast risk, such as inflation adjustment mechanisms and sales-level adjustment mechanisms; (5) annual reconciliation proceedings to implement safeguarding mechanisms; (6) mid-period re-openers for addressing significant deviations in law, energy policy, taxes, and events beyond the control of the regulated firm; and (6) lengthened regulatory review periods so as to allow adequate analysis of the complex interworking of all components of the multi-year projections.

The U.K. safeguards are critical to protecting both regulated utility shareholders and ratepayers from potential risks, especially those related to forecast errors (e.g. that would affect the firm's ability to participate in capital and debt markets), and also to protect network users from risk that the company's cost projections are over-stated, or take insufficient account of the opportunities for cost savings.

The MPSC may opt to test the approach of using PIMs to meet certain goals (both "traditional and evolving"). However, our review of PBR frameworks indicates that PIMs typically do not address all goals, especially those associated with extending the period between filing of general rate-cases.

Formatted: Font: Georgia, 12 pt

Formatted: Comment Text

Commented [RS19]: This seems to be dismissive of recommending MRPs. In our view, the MPSC may want to include MRPs in its recommendation on PBR frameworks, with the caveat concerning legislative restrictions and implementation challenges.

Formatted: Font: Georgia, 12 pt

Formatted: Font: Georgia, 12 pt

Commented [RS20]: See DTE's note below regarding including safeguards in any PBR framework.

Commented [RS21]: Its important to include safeguards similar to these when considering implementing PBR frameworks/mechanisms.

Formatted: Font: Georgia, 12 pt

Formatted: Font: Georgia, 12 pt

~~(without a multi-year rate case) to extend the period between filing of general rate cases, to encourage utility investments having extended payback periods, and promote cost efficiency, and to achieve other output based goals.~~

Commented [RS22]: It is unclear how PIMs could be employed to achieve these goals. Especially extending the period between filing of general rate-cases.

PIMs can be used to enhance customer satisfaction through public reporting metrics on various measures of customer satisfaction. RIIO and Denmark utilize dashboards to rank utilities on various measure of customer satisfaction. Reportedly, these metrics and dashboards have led to higher levels of customer satisfaction in both jurisdictions.

PIMs can also encourage non-wires alternatives, which may be more cost-effective than traditional utility capital investments in plant. Among the approaches taken to accomplish these are NY REV's incorporation of a variety of incentives to encourage utilities to work with third-party service providers to efficiently integrate distribute resources in New York's distribution system.

A PIM structure could be fashioned by the MPSC to share savings between the utility and ratepayers where such projects are cost-effective and save money compared to traditional capital investments in utility plant. The Consolidated Edison Brooklyn-Queens demand management project in New York has shown the magnitude of potential savings that can be achieved with innovative demand-reduction and targeted DER investments.

The MPSC notes that incorporation of public process with stakeholders and the utilities is important to the success of new and innovative programs. This is particularly the case with the opportunities that advanced technologies now offer to realize grid and customer values simultaneously.

If PIMs are considered in the future by the Commission, then such a mechanism should include both positive incentives (rewards for good performance) and negative incentives (for unacceptable performance such as reduced customer service and service quality). Good PBR design in the U.K. and other U.S. states has recognized the need for a mix of incentives, both positive and negative, to improve utility performance.

Supplemental incentives, such as trackers, may also be a part of a PBR framework in Michigan. Trackers frequently are used in conjunction with an MRP (i.e., calibrating the scope of costs under which the utility is subject to risk and rewards within an MRP). Trackers will need to be carefully designed so that they do not provide an "easy" cost pass-through, but are part of an integrated PBR. Even without a full-fledged PBR, trackers may be efficient to use as a mechanism to incent utilities to invest in important areas.

Formatted: Body Text, Indent: Left: 0"

Any step forward should recognize the well-developed Michigan cost-of-service model, which itself has evolved considerably over the past four decades. Performance incentives, on the other hand, can be added onto traditional cost of service regulation.

Keeping Michigan's cost-of-service regulatory model intact while perhaps building upon it appears to be an advisable course of action. Building on the strength of the current regulatory model, by incorporating the use of targeted incentive mechanisms may be combined with the current cost-of-service approach.

A set of questions the Commission can continue to explore is whether or not a diverse set of PIMs could facilitate the evolution of Michigan's regulated utilities toward a more reliable, and resilient grid while increasing value to consumers.

This will require shifting the traditional focus of infrastructure maintenance from a like-for-like replacement of grid assets, toward the deployment of lower lifecycle-cost, advanced technologies and practices. Regulated utilities would, under this approach, have in addition to their traditional role as retail energy supplier a stronger role providing network services to a diverse group of users. The Commission could consider the option of regulatory pilots based on targeted performance mechanisms to test PBR concepts in helping achieve these important goals. As always with PBR, it must be carefully designed to achieve cost control objectives and not to encourage undesirable outcomes.

As indicated above, any PBR pilot implemented would be in context of Michigan's current initiatives in long-term distribution-planning, energy waste recovery programs, distributed generation tariffs, Public Utilities Regulatory Policies Act (PURPA) proceedings, and the Integrated Resources Planning process recently put in place by Act 341.

Commented [RS23]: This report should more clearly articulate its proposed plan for a pilot PBR, including the scope of PIMs and the degree of symmetry (rewards and penalties).

Reliability and grid resilience will be a focus of much future infrastructure development. Customer sited renewable generation (solar PV), advanced energy storage, deployment of electric vehicles, and micro-grids are all in a state of infancy in Michigan and could potentially play a role in helping achieve reliability and resilience output-goals established by PBR.

As specified in PA 341, Sec. 6u. the commission has completed a study in collaboration with input from multiple stakeholders regarding performance-based regulation, under which a utility's approved revenue would depend on the utility achieving targeted policy outcomes.

This study has examined performance-based regulation systems that have been implemented in other countries, including the RIIO model utilized in the United Kingdom. Other topics that have been examined include:

* methods for estimating the revenue needed by a utility during a multiyear pricing period,

* methods to increase the length of time between rate cases, options for establishing incentives and penalties that pertain to issues such as customer satisfaction, safety, reliability, environmental impact, and social obligations, and

* profit-sharing provisions that can spread efficiency gains among consumers and utility shareholders and can reduce the degree of downside risk associated with attempts at innovation.

MPSC has found the research process undertaken in the creation of this report to be useful in evaluating new regulatory tools that have been utilized in other jurisdictions. As discussed ~~herein~~ in this study, such changes require that stakeholders find common ground. To the extent there is an interest in pursuing PBR further, the next steps could include a technical conference/contested case to fully vet the above, and any other options, before moving into the pilot or implementation phase. -

Williamson, Rod – Executive Director of the Association of Businesses Advocating Tariff Equity (ABATE)

The draft report appears to be well balanced including coverage of historic versus projected test years, the use of the new IRP process and the use of performance metrics.