



Evaluation of Reopener Remedy Options

for ATCO Electric and ATCO Gas

By

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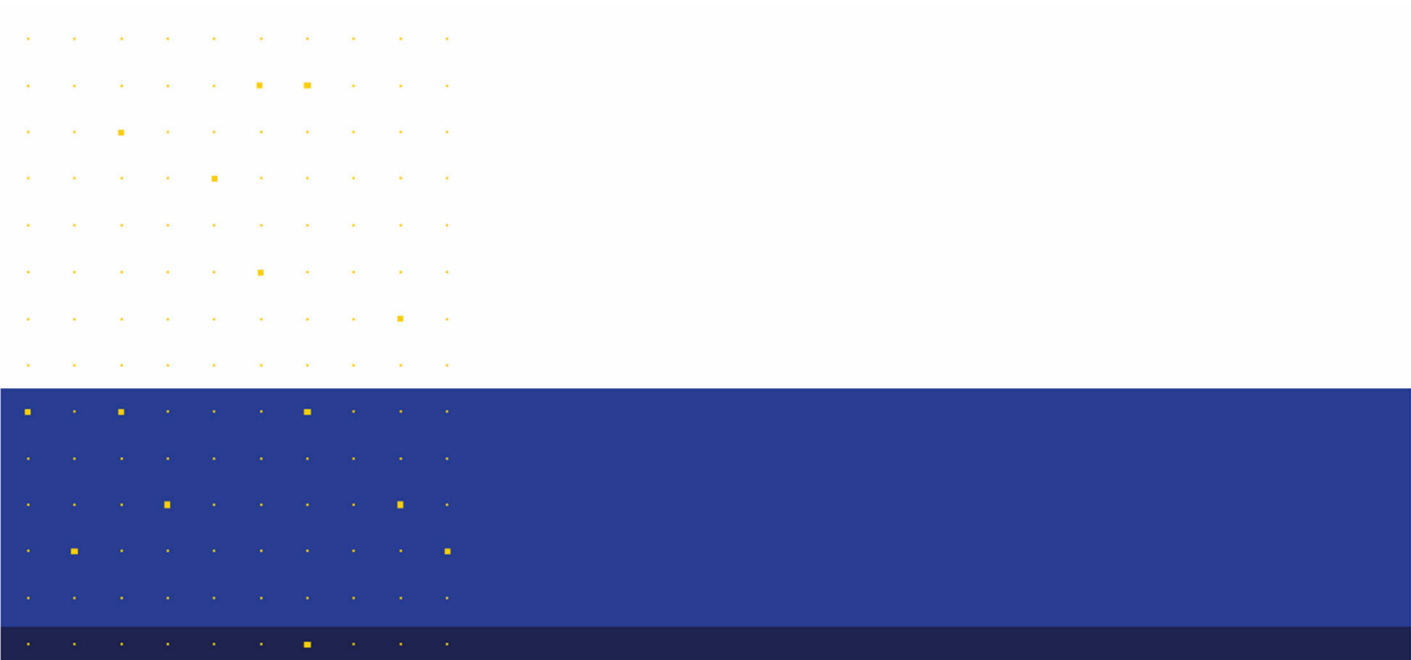


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1. INTRODUCTION

1.1 Qualifications

1. Christensen Associates Energy Consulting, LLC (“CA Energy Consulting”), a wholly owned subsidiary of Laurits R. Christensen Associates, Inc., provides utility industry stakeholders with expert support on economic issues ranging from rate design, cost-of-service, cost of capital, and performance-based regulation (“PBR”), helping answer a broad array of regulatory and business questions through research reports and in docketed rate proceedings. In recent years, the firm has undertaken substantial project work assisting utilities and regulators in both the United States and Canada with evaluating and designing incentive PBR frameworks. The company has a long history of work in this field, having been involved in developing the theoretical foundations and practical design of incentive regulation plans dating back to the inception of incentive regulation in North America in the 1980s.
2. This report is authored by two CA Energy Consulting experts with substantial experience on issues related to incentive regulation, including the current PBR framework in Alberta. Mr. Nicholas Crowley is a Vice President. He has testified on incentive regulation issues in Massachusetts,¹ New Hampshire,² and Alberta,³ and has authored public and non-public research reports in Ontario,⁴ and other jurisdictions. He has also conducted research related to incentive regulation, recently co-authoring an article with Dr. Mark Meitzen on the impact of performance-based regulation (“PBR”) on Canadian electricity distribution

¹ See D.P.U. 20-120; D.P.U. 22-22; D.P.U. 23-150

² “Direct Testimony of Nicholas A. Crowley,” Nicholas A. Crowley, MS, New Hampshire Department of Energy, Docket DE 23-039, December 13, 2023.

³ “Determination of the Third-Generation X Factor for the AUC Price Cap Plan,” Mark E. Meitzen, Ph.D. and Nicholas A. Crowley, MS, Alberta Utilities Commission Proceeding 27388, January 20, 2023.

⁴ “Jurisdictional Review of Utility Remuneration Models,” September 2024, https://engagewithus.oeb.ca/advancing_pbr.

utilities and a separate article with Dr. Daniel McLeod on utility remuneration and cost inflation.⁵ Prior to joining CA Energy Consulting, Mr. Crowley was an economist in the Office of Energy Market Regulation at the Federal Energy Regulatory Commission ("FERC"), where he assisted with energy industry benchmarking, the price cap regulation of oil pipelines, and the review and evaluation of natural gas pipeline rate cases. He holds a Bachelor of Science degree in economics, as well as a Master of Science degree in economics from the University of Wisconsin Madison. He is also a CFA charterholder. Mr. Crowley's resume is attached as Appendix 2.

3. Dr. McLeod has calibrated index caps in Alberta and British Columbia, critiqued and developed cost benchmarking models in Alberta, Massachusetts, and New Hampshire, and has assessed the incentive properties of regulatory regimes more generally in Canada and the United States. He holds a PhD in economics from the University of Wisconsin-Madison, where he graduated with a focus in industrial organization and applied econometrics. Dr. McLeod's resume is attached is Appendix 3.

1.2 Purpose of the report

4. CA Energy Consulting has been asked to provide an independent evaluation of the Phase 2 reopener position of the ATCO Utilities ("ATCO," or "the Company"). This work has involved reviewing materials filed before the Alberta Utilities Commission ("AUC," or "the Commission") pertaining to ATCO's PBR reopener and has also involved conducting discussions with ATCO staff to better understand the Company's proposed reopener remedy. This report provides our independent evaluation of ATCO's position and offers recommendations for alternative remedy options.
5. ATCO has asked for CA Energy Consulting to perform the following:
 - Review relevant proceeding documents, including AUC Decision 28300-D01-2024 ("Decision 28300");
 - Review ATCO's reopener remedy proposal;
 - Participate in an internal workshop regarding the proposal;
 - Offer advice to assist with development of the proposal; and
 - Prepare an expert report regarding the appropriate remedy to address the problem identified in Decision 28300, including a review of ATCO's remedy proposal and an independent opinion on whether the remedy proposal results in a just and reasonable outcome for ATCO and its customers.

⁵ "Measuring the Price Impact of Price-Cap Regulation Among Canadian Electricity Distribution Utilities." Utilities Policy. Vol. 72, October 2021. Also, "Trends and Drivers of Distribution Utility Costs in the United States: A Descriptive Analysis from 2008 to 2022. Electricity Journal. 37 (2024) 107397.

6. The authors of this report are not legal experts, but rather experts in the principles of economics as they relate to utility regulation. Our report relays recommendations that consider economic incentives and the design of efficient utility remuneration frameworks. Our objective is to provide the Commission with an independent perspective on this reopener proceeding, drawing on experience from incentive regulation work in other jurisdictions and on well-established economic theory.
7. We acknowledge that we have a duty to provide opinion evidence to the Commission that is fair, objective and non-partisan.

1.3 Principal Findings from the Phase 1 Reopener Proceeding

8. In its decision regarding the second generation PBR plan for gas and electricity distributors in Alberta ("PBR2"), the Commission determined that an achieved return on equity ("ROE") that is 500 basis points above or below the approved ROE in a single year, or 300 basis points above or below the approved ROE for two consecutive years, is sufficient to warrant consideration of a reopening and review of a PBR plan.⁶ In years 2021 and 2022, both ATCO Gas and ATCO Electric achieved ROEs sufficiently in excess of the approved ROE to trigger the Alberta PBR2 reopener provision. Following publication of these returns, in accordance with the Commission's requirement, an interested party requested that the Commission initiate a reopener proceeding. Phase 1 of this proceeding has been settled in Decision 28300.
9. We understand the Commission's principal findings from the Phase 1 proceeding, as follows. First, the Commission determined that there was not a problem with the design of the ATCO Utilities' PBR2 plans.⁷ Rather, the Commission found there was a problem with the operation of each of the ATCO Utilities PBR2 plans. Relatedly, the Commission found that the ATCO Utilities had experienced substantial cost savings that were not in all cases attributed to specific efficiency initiatives or otherwise adequately explained.
10. Second, the Commission found that years 2018, 2019, and 2020 would not be considered in the second phase of the reopener proceeding. Third, the Commission found that "the knowledge exception to the prohibition against retroactive ratemaking" allows for a

⁶ Decision 20414-D01-2016 (Errata).

⁷ Decision 28300-D01-2024 (May 22, 2024), p. 23.

remedy to be applied to both 2021 and 2022.⁸ However, the Commission did not stipulate as to the form of the remedy or its mechanism.

11. To that end, the Commission determined that the scope of Phase 2 will be to determine the appropriate remedy to address the problem identified in the first phase of the reopener proceeding.

1.4 Statement of Key Positions

The Problem in 2021 and 2022 Resulted from Reduced Expenses

12. Assuming fixed levels of shareholder's equity, a firm's ROE will change with revenues and expenses. If revenues increase while expenses remain unchanged, ROE will increase. ROE will also increase if expenses decrease while revenues remain unchanged. Under a price cap or revenue cap PBR framework, revenues are largely set by the design of a five-year plan. Under a revenue cap, allowed revenues generally adjust by an inflation rate and a productivity offset (known as the "I-X formula"). Under a price cap, customer rates also adjust by an I-X formula. With revenues largely established exogenously during the PBR term,⁹ utilities are able to influence ROE within this construct by managing operations to reduce costs, effectively lowering expenses on the income statement.
13. As in other jurisdictions with price caps and revenue caps, Alberta's PBR design sets the rate and revenue trajectory for the province's electric and gas distributors, meaning that revenues are established by the design of the PBR framework. The Alberta utilities are permitted to seek cost savings vis-à-vis company operations over a five-year PBR term in order to achieve a higher ROE. A reopener provision serves as a guardrail, in case of problems with either the design or operation of the plan during the PBR term and may be triggered by certain thresholds of realized ROE relative to allowed ROE. However, as has been established by the AUC, the ROE trigger does not necessarily imply a problem with the design of the PBR plan or the company's operations.¹⁰
14. The Commission found in the Phase 1 proceeding that ATCO achieved a sufficiently high ROE in 2021 and 2022 to warrant a reopening of the plans. The Commission also determined that a problem existed during those years with ATCO's *operations*—but that

⁸ Decision 28300-D01-2024 (May 22, 2024), p. 42.

⁹ A caveat to this statement is that revenues may be affected by the utility under a price cap if the company is able to influence sales quantities. However, the extent to which a utility is able to affect sales volumes may be limited, particularly in the short run.

¹⁰ Decision 20414-D01-2016 (December 16, 2016), p. 71.

there was no problem with the *design* of the PBR2 framework. Because of the way ROE is computed, as explained above, we understand this to mean that the Commission found that ATCO's elevated ROEs in 2021 and 2022 did not result from a problem with revenues collected. Furthermore, since ROE varies with changes in revenues or expenses holding fixed equity levels, and the Phase 1 proceeding settled that the problem in ATCO's PBR2 framework did not pertain to revenues (which are set by the PBR design), this means that the problem in 2021 and 2022 must have resulted from reduced spending (affected by Company operations). This conclusion was repeated by intervenors in the Phase 1 proceeding.¹¹

15. Reduced spending is an expected result of regulating utilities under price cap and revenue cap frameworks, as the objective of incentive regulation is to provide the utility with an incentive to find cost efficiencies. However, the Commission determined that some portion of reduced spending during the PBR2 term resulted not from cost efficiencies, but from a problem with the company's operations. The Phase 1 decision stated: "The Commission's view is that much of the ATCO Utilities' unquantified and unexplained savings were the result of factors other than efficiencies, including those asserted by the intervenors, such as the ATCO Utilities opting to not pursue certain capital projects [...]"¹²
16. A potential problem with underspending under incentive regulation is frequently discussed in the economic literature.¹³ Solutions to this problem have existed for decades, and they do not involve cash transfers. Rather, they typically take the form of Performance Incentive Mechanisms ("PIMs").¹⁴

The Appropriate Remedy is Not a Refund

17. For the reasons stated above, we understand that the Commission has found that ATCO's operational problem was underspending during the PBR plan. According to the Commission, problematic underspending may have resulted from opting not to pursue capital projects, or from realizing cost savings from COVID-related externalities.

¹¹ Exhibit 28300-X0096, UCA Evidence Submission (Prepared by Russ Bell) - 28300, PDF pages 10, 13; Exhibit 28300-X0122, UCA-AUC-2023DEC4-001(a); UCA-AUC-2023DEC4-003(c). Exhibit 28300-X0121, CCA-AUC-2023DEC18-001(a), PDF pages 1-2.

¹² Decision 28300-D01-2024 (May 22, 2024), p. 28.

¹³ See, for example: Dobbs, I.M., "Intertemporal price cap regulation under uncertainty," *The Economic Journal*, 114: 421-440, 2004. Bartolini, D., "Investment Incentives under Price-Cap Regulation," *Theoretical Economics Letters*, 2, 570-575, 2012.

¹⁴ See, for example: "[Performance Based Regulation: Theory and Applications to California](#)," by Dan Aas, UC Berkeley, 2016.

18. If ATCO should have added capital during the PBR term but failed to do so because it was prevented by COVID-19 or because it opted not to complete certain projects, the remedy to this problem is prudent spending. The remedy is not refunding revenues, which the AUC has ruled were collected appropriately. In general, a problem with a firm's operations will not be corrected by transferring cash. An operational problem should be corrected with an operational solution. Even if customers could be compensated for the underspending, a refund should be based on the dollar value that spending provides customers, which is difficult if not impossible to accurately quantify.
19. There are also other reasons why a refund is not a reasonable remedy in this case. It is our opinion that a refund is inconsistent with the AUC's PBR Principles. In addition, we find in our jurisdictional review that, like Alberta, reopeners are not defined as a mechanism to enact a transfer of cash. Rather, reopeners generally exist to enable a change that corrects a problem. Among other things, this could mean changes to the PBR framework or the cessation of the PBR plan and a return to cost-of-service regulation. Cash transfers are facilitated by earnings sharing mechanisms, which the Commission determined was, appropriately, not in effect during the PBR2 term.¹⁵ This is not to say that a reopener could never involve a transfer of cash, but a cash transfer would only be an appropriate remedy if the source of the problem could be fixed by a cash transfer, given these issues. Otherwise, the problem that caused the trigger could persist.
20. We conclude that the remedy to the operational problem in 2021 and 2022 is not for ATCO to refund customers. Nevertheless, in case it is the Commission's belief that ATCO must determine the value of a cash transfer to customers for the purposes of remedying the operational flaw in the Company's PBR2 plan, ATCO has made such a computation. We find that ATCO's computation results in a reasonable valuation of this transfer, assuming certain characteristics of the Company's spending during 2021 and 2022. This approach calculates the costs and revenues that would have resulted from spending the amount of unexplained savings, and acknowledges that ATCO's customers currently benefit from the Company's cost savings obtained in PBR2.
21. However, we believe it makes sense to reframe ATCO's operational problem in terms of customer value rather than Company spending. Refocusing the issue on ensuring that customers receive safe and reliable service and giving the Company the freedom to accomplish this objective in a cost-effective manner results in a remedy that is more consistent with PBR. Therefore, in addition to commenting on ATCO's proposed approach

¹⁵ Decision 28300-D01-2024 (May 22, 2024), p. 23.

to a financial remedy, this report proposes remedy options other than a cash transfer. One remedy proposes that the Company should commit to spending during the final two years of its PBR3 term. We also propose a remedy that provides customers with high quality service at the lowest possible cost using a common tool of incentive regulation known as a Performance Incentive Mechanism (“PIM”).

1.5 Organization of the Report

22. Following this introductory section, the report presents context and recommendations for remedies to resolve the operational problem that caused ATCO’s 2021 and 2022 reopener trigger. Section 2 presents a brief review of ratemaking principles. Section 3 provides a review of how reopeners are interpreted as a PBR tool in other jurisdictions. Section 4 discusses why we do not believe a refund is an appropriate remedy in this case. Section 5 presents our review of ATCO’s proposed approach to a financial remedy, as well as two recommended remedy options. Section 6 concludes this report with a summary of our findings.

2. PBR AND RATE DESIGN

2.1 Principles of Ratemaking

23. Regulatory authorities across North American jurisdictions set rates according to state or province-level rules and laws. Although the specific rules governing utility rates differ from place to place, regulators generally recognize basic rate design principles, often rooted in the tenets described by economist James Bonbright (known as the “Bonbright Principles”).¹⁶ Put briefly, these criteria can be described as follows:

Practical:

- Be simple, understandable, and readily accepted.
- Be free from controversy.

Revenue-Related:

- Recover total revenue requirements.
- Provide revenue stability. (Small changes in billing quantities should not lead to large changes in revenues.)
- Achieve rate stability. (Avoid ongoing rate redesign.)

Cost-Related:

- Encourage efficient energy consumption decisions.

¹⁶ James C. Bonbright, *Principles of Public Utility Rates*, 1961.

- Reflect social costs and benefits.
- Appear fair in apportioning costs.
- Avoid undue discrimination.

24. When properly designed, PBR frameworks in the form of price caps or revenue caps can align well with the Bonbright principles. For example, the price cap mechanism in place for electricity distributors in Alberta adjusts rates each year according to a formula (simple, understandable) based on government inflation information (free from controversy), and provides both revenue stability to the utility and rate stability to customers.¹⁷ The adoption of K-bar for use in Alberta's PBR2 term provided an additional layer of rate stability and mechanization to the rate-setting process.

25. Because these principles are considered a starting point for assessing the reasonableness of rates, we refer to them in Sections 4 and 5 when evaluating different approaches to remedying the operational flaw identified by the Commission in the Phase 1 proceeding.

2.2 Principles of PBR

26. The primary reason for adopting a PBR plan with a price or revenue cap is that it offers an approach to regulation that provides the regulated firm with stronger incentives for efficiency than traditional cost of service (COS) regulation. The idea is to emulate competitive markets, where price-taking firms compete in part by discovering more efficient ways to produce, allowing them to earn economic profit in the near term. By choosing a regulatory regime that sets a company's price or revenue growth to be independent from its cost growth as it is in a competitive market, the profit-maximizing utility is incentivized to find ways to reduce costs and earn a profit. While the company clearly benefits in the form of higher profit during the term, customers can also benefit during the term through slower rate escalation and at the end of the term at rebasing, when any efficiency gains are passed on to customers in the form of lower rates relative to what they may have been under a COS framework.

27. PBR plans with the strongest incentive for efficiency gains contain a price or revenue cap framework, which provides the utility with a spending envelope each year to meet operational requirements as well as the flexibility and motivation to pursue cost reduction initiatives. This motivation stems from utilities retaining all or a portion of the profits from those cost reductions until rates are reset in the future. This is in contrast to traditional forms of COS regulation in which the utility does not possess the same incentives to

¹⁷ Cost-related issues like allocation across rate classes are determined in Phase 2 Rate Design proceedings.

contain costs, as it is free to petition for a rate change when it determines that rates need to be realigned with costs.

28. The strength of the utility's incentive to discover cost efficiencies in a price or revenue cap framework depends crucially on the share of profit it retains from its efficiency growth, and the extent to which it believes the regulator will not appropriate the cost savings it achieves if the regulator deemed its profits to be excessive during the PBR term. For example, under an ESM, the firm is allowed to retain earnings above the authorized ROE up to a certain point—e.g., 300 basis points above authorized ROE—after which, excess earnings are refunded to customers. Consequently, the firm has a strong profit motive to become more efficient up to the full sharing point. Above that point, the PBR plan offers incentives akin to traditional COS regulation.

2.3 The AUC's Principles of PBR

29. The economic theory underlying PBR discussed above lays the groundwork for any PBR plan. In order to ensure that all stakeholders benefit in the plan, the AUC established the following principles:^{18,19}

1. A PBR plan should, to the greatest extent possible, create the same efficiency incentives as those experienced in a competitive market while maintaining service quality.
2. A PBR plan must provide the company with a reasonable opportunity to recover its prudently incurred costs including a fair rate of return.
3. A PBR plan should be easy to understand, implement and administer and should reduce the regulatory burden over time.
4. A PBR plan should recognize the unique circumstances of each regulated company that are relevant to a PBR design.
5. Consumers and the firm should share equitably in the benefits produced by the PBR plan.

¹⁸ AUC Decision 2012-237 (September 12, 2012), p. 7.

¹⁹ Alternatively, the goals of a PBR plan are often stated in terms of the objectives of the plan. For example, the AUC's PBR principles enumerated above correspond to the following regulatory objectives:

- Encourage increased overall efficiency in the utility's controllable operations (Principles 1, 3 and 5)
- Minimize shareholder risk (Principles 2 and 4)
- Maintain competitive customer rates relative to other utilities in the region (Principles 1 and 5)
- Provide customers with rate stability and predictability (Principles 1 and 5)
- Increase regulatory and administrative efficiency (Principle 3)
- Ensure that there is no material degradation in service quality after controlling for exogenous effects (Principles 1, 2 and 4)
- Position the utility to respond expeditiously to evolving environmental and institutional conditions as well as heightened security risks (Principles 2 and 4)

30. In its first principle, the AUC clearly recognized the importance of maximizing utilities' incentives to discover cost efficiencies, understanding with the inclusion of the second principle that exposing the utility to excessive risk could limit its ability to attract capital and violate the Fair Return Standard²⁰ and the Hope Standard.²¹ Additionally, the AUC prioritized reducing the regulatory burden associated with COS, acknowledged that a one-size-fits-all approach to PBR in a rapidly evolving industry will likely lead to undesirable outcomes, and aimed to share achieved cost efficiencies fairly between the utility and its customers.
31. We understand from the Commission's 2023 decision that these remain the foundational principles of PBR in Alberta.²² Therefore, we will refer to these principles in our assessment of options for ATCO's reopener remedy.

2.4 Addressing Underspending with Incentives

32. A review of industry literature does not indicate any link between PBR incentives and reduced service quality. However, economists have discussed a theoretical possibility that the cost-cutting incentives of revenue or price caps could lead to service quality degradation.²³ Performance metrics tied to financial incentives, known as Performance Incentive Mechanisms ("PIMs"), present a principled remedy to this theoretical problem and have been employed with the goal of preventing poor performance in other jurisdictions where utilities operate under PBR.²⁴
33. PIMs are fairly common PBR tools in jurisdictions outside of Canada where utilities operate under price caps or revenue caps. For example, utilities in New York, Great Britain, Australia, Massachusetts, and Hawaii all operate with some combination of price/revenue cap regulation and PIMs.²⁵ New York utilities have been subject to the Reliability Performance Mechanism ("RPM") and the Customer Service Performance

²⁰ *Northwestern Utilities v. City of Edmonton*, 1929. SCR 186.

²¹ *Federal Power Commission vs. Hope Natural Gas Co.*, 320 U.S. 591, 603, 605, (1944) and *Duquesne Light Co. vs. Barasch*, 488 U.S. 299 (1989).

²² Decision 27388-D01-2023 (October 4, 2023), p. 7.

²³ See, for example: Chunrong Ai, David E.M. Sappington, "Reviewing the impact of incentive regulation on U.S. telephone service quality," *Utilities Policy*, Volume 13, Issue 3, September 2005, Pages 201-210.

²⁴ Dan Aas, "[Performance Based Regulation: Theory and Applications to California](#)," Report to the California Public Utilities Commission, May 2016.

²⁵ Nicholas Crowley, Sherry Wang, Andi Romanovs-Malovrh, "Jurisdictional Review of Utility Remuneration Models for the Ontario Energy Board." See here: [Advancing Performance-based Rate Regulation | Engage with Us](#).

Mechanism (“CSPI”) for many years. These mechanisms were initially created to prevent excessive spending cuts under multi-year rate plans.²⁶ In Hawaii, the utilities operating under PBR have eight PIMs, including a penalty-only SAIDI PIM, and a similar SAIFI PIM, that may reduce allowed ROE by up to 20 basis points depending on company performance.²⁷ In Great Britain, the electricity distribution utilities operate under eight PIMs, including an “Interruptions Incentive Scheme,” which sets financial incentives aimed at maintaining or improving reliability. British gas distribution utilities also operate under several PIMs, including an “Unplanned Interruption Mean Duration” metric, which connects gas reliability with a financial incentive.

34. Table 1 presents examples of some SAIDI PIMs currently in effect in North America. In general, SAIDI PIMs are penalty-only, such that the company is not rewarded for achieving its targets, but is penalized for falling short.

Table 1: Examples of Current SAIDI PIMs

Company	Structure	Threshold	Financial Value
Duke Energy Progress ²⁸	Penalty-Only	Tier 1 > 153; Tier 2 > 163; Tier 3 > 173	Tier 1 penalty: \$3,000,000; Tier 2 penalty: \$5,000,000; Tier 3 penalty: \$9,000,000
Commonwealth Edison	Symmetrical	1% annual improvement vs. baseline. ²⁹	+/- 5 ROE bps
Hawaii	Penalty-Only	Target: 101.09 Min/Customer Deadband: 9.31 Min/Customer	Max Penalty: 20 ROE bps

35. Given that the Commission has found ATCO’s operations under PBR2 were problematic, and given that this problem logically must relate to utility spending, we recommend consideration of introducing a PIM that applies to metrics currently tracked by ATCO, both on the electric and gas side of the business. A PIM would provide a simple, straightforward mechanism using the principles of incentive regulation to solve the

²⁶ New York State Department of Public Service, Staff Report and Proposal. *Reforming the Energy Vision. Case 14-M-0101*. April 24, 2014. p48.

²⁷ Addressing the Hawaiian Electric Companies’ Proposed Performance Incentive Mechanism Provision Tariffs, Filed May 24, 2021. Docket No. 2018-0088. Order No. 37802.

²⁸ These penalties reflect approximately 3-, 6-, and 9-bps reductions to ROE for Duke Energy Progress, respectively. According to North Carolina state law, the utility may not operate under a PIM that contains rewards or penalties in excess of 25 basis points. (N.C.G.S. § 62-133.16(c)(5))

²⁹ “Baseline” here means average performance by the company during the three-year period including 2021-2023.

spending problem expressed by intervenors in Phase 1. We discuss these options in more detail in Section 5 (Option 2).

3. JURISDICTIONAL REVIEW OF OFF-RAMPS AND REOPENERS

36. In this section, we summarize the purpose of the reopener in a PBR plan, how it functions in Alberta, and how this contrasts with reopener provisions in other jurisdictions. We also investigate earnings regulation in other jurisdictions, specifically, how regulators have shared excessive earnings with ratepayers between rate cases. We discuss the implications of these findings in Sections 4 and 5.

3.1 Reopener Definition

37. PBR plans are typically characterized by a longer period of time between traditional revenue requirement applications. This time between “rebasing” results in a prolonged separation of costs and revenues, providing the utility with enhanced efficiency incentives but also enhanced risk. The I-X formula provides some attrition relief for utilities over the PBR term, setting a rate trajectory based on the economic principles of competitive markets. However, because costs and revenues are separated over the PBR term by design, the utility’s cost growth will equal its revenue growth only if the utility experiences stable cost escalation in line with the formula. Since the automatic nature of the I-X formula does not adjust annual revenues for sustained changes in utility costs in the comprehensive manner that rate applications adjust revenues, a utility operating under PBR could potentially experience earnings that are dramatically higher or lower than the amount provided under the I-X formula. This is particularly true if no earnings-sharing mechanism is in place, because ESMs share the results of a deviation from the utility’s allowed rate of return. To protect against an untenable divergence of costs and collected revenues, PBR plans often include “off-ramps” or “reopeners”—mechanisms that allow for review of the regulated entity’s PBR plan during the PBR term and potential relief in the form of adjustments to the PBR plan or exiting the plan completely in the event certain predefined conditions occur.³⁰

³⁰ Off-ramps are often similar to reopeners. The Alberta Utilities Commission distinguishes between the terms “off-ramp” and “reopener,” opting to use reopener, which generally implies a more targeted adjustment to the PBR framework as opposed to the termination of the plan.

38. In its decision establishing Alberta’s first generation PBR plan, the AUC defined a reopener as a mechanism, “generally intended to provide an opportunity to investigate and modify a particular component in the operation or design of the PBR plan.”³¹ The Commission did not provide additional detail regarding the nature of the remedies for reopeners. This means that the Commission did not establish what it means to “modify a particular component in the operation or design of the PBR plan.” The Commission has not stated that a reopener should involve a cash transfer, nor has it stated that the reopener should involve a cost-of-service rebasing. The meaning of this phrase was also not established in the Phase 1 proceeding. The appropriate remedy for one particular reopener—regarding ATCO’s earnings in 2021 and 2022—is the purview of this Phase 2 proceeding.

3.2 Off-Ramps and Reopeners in Other Jurisdictions

39. To provide context for establishing a remedy to ATCO’s operational problem in PBR2, this discussion reviews reopeners and off-ramps across North American jurisdictions, including British Columbia, Ontario, Massachusetts and Hawaii.³² While the terms “off-ramp” and “reopener” are in some cases used nearly interchangeably, this is not always the case. (As in Alberta, the regulator in Hawaii also sought to separate the terms “off-ramp” and “reopener,” calling the term “off-ramp” misleading because it suggests the abandonment of the entire PBR framework.³³) This section reviews both reopeners and off-ramps, as both are broadly defined to mean a pre-defined tool for correcting or exiting the PBR framework during the PBR period.

40. Across jurisdictions, the criteria to trigger reopeners and off-ramps typically involves a substantial deviation of realized returns from allowed returns. Triggers may also include non-financial events like rating deterioration from ratings agencies, deterioration of service, and substantial organizational changes. Once reopener criteria are triggered, utilities in other jurisdictions—as in Alberta—would generally enter a regulatory proceeding to determine next steps. The proceeding may find that no changes to the PBR plan are necessary. Alternatively, the utility or other stakeholder may seek to adjust the

³¹ AUC Decision 2012-237 (September 12, 2012), p. 156.

³² These jurisdictions were chosen for review because the PBR plans operating therein bear resemblance to the directives set forth by the British Columbia Utilities Commission (“BCUC”) in its 2021 order related to BC Hydro’s transition to PBR. Namely, the utilities contained in this review operate under some form of indexed cap, either a price cap or variant of revenue cap, defined by an adjustment set by inflation and a productivity offset (“I-X”).

³³ Hawaii Public Utility Commission, Decision 37507, Docket 2018-0088, 186.

PBR framework, enabling it to continue more smoothly through the remainder of the PBR term. If necessary, the utility may exit the PBR framework entirely and file a new rate application.

41. Table 2, below, contains the specific trigger parameters in each jurisdiction reviewed (row seven). In all cases except Hawaii, a utility triggers its reopener/off-ramp review if its ROE exceeds or falls below a pre-determined number of basis points from the allowed ROE. For example, FortisBC, Inc. has an off-ramp that is triggered if actual ROE exceeds or falls below allowed ROE by 150 basis points after the earnings sharing mechanism redistributes earnings. In Hawaii, the regulator sets an ROE trigger that corresponds to the company's ESM tiers. Hawaii's off-ramp policy also includes other potential triggers, including regulator discretion. Massachusetts utility PBR plans do not contain off-ramp provisions.³⁴
42. In most cases, the triggering event automatically opens a review of the PBR plan. In Ontario, the utility is required to file to commence a review within a set window of time after company financial statements reflect the triggering ROE discrepancy. The Alberta utilities are an exception, in that the review is not automatically required, only occurring if an interested party files with the Commission after the triggering event occurs, or the Commission otherwise initiates a process on its own motion. In all cases, after the initial filing opens a reopener review docket, interested stakeholders may request information to assess the PBR framework. As in a typical regulatory proceeding, parties may submit an opinion on potential adjustments to components of the PBR plan or to suggest termination of the plan altogether. Generally speaking, the regulator would issue a decision directing modifications to the plan, termination of the plan, or continuation of the plan with no changes.
43. To our knowledge, the only occurrence of a reopener being triggered among PBR plans in North America was in Alberta, where ENMAX triggered the reopener threshold under its formula-based regulation plan in 2011, and then later both ATCO Gas and ATCO Electric surpassed their allowed ROE by more than 300 basis points over two years in 2016 and 2017 and more than 500 basis points in one year in 2017 (and again in 2021 and 2022). In ATCO's first PBR proceeding, the Office of the Utilities Consumer Advocate filed for the AUC to initiate a review, which took place over the course of seven months. In its final

³⁴ The Massachusetts Department of Public Utilities found that off-ramp provisions "would not be in the public interest as it would undermine the intent of a defined PBR term and would not provide the proper incentives for cost containment and long-term planning and would not ensure a reduction of regulatory and administrative costs."

decision, the AUC determined that no change to the PBR plan was necessary, stating “there is no evidentiary basis to conclude that the earnings achieved by the ATCO Utilities above the Commission’s generically approved ROE were the result of a problem with the design or operation of the ATCO Utilities’ 2013-2017 PBR plans.”³⁵ The AUC decision highlights that the triggering of a reopener provision does not automatically result in any changes to the PBR framework. The trigger is merely the first step in a regulatory process.

44. A PBR framework should be designed to avoid the need to reopen the plan during the PBR term. Adjustments to the plan should instead be made during the rebasing periods between PBR generations. Even though most utility PBR plans contain reopener provisions for worst case scenarios, none of the utilities in other jurisdictions reviewed for this research faced a reopener adjustment to their PBR plan.
45. We make use of our jurisdictional review in this section throughout the remainder of the report, in order to establish whether or not a given remedy to the operational flaw identified by the Commission is consistent with the precedent in other jurisdictions.

³⁵Alberta Utilities Commission, Decision 23604-D01-2019, February 27, 2019.

Table 2: Reopener Characteristics in North American PBR Plans

	Alberta	British Columbia	Ontario	Massachusetts	Hawaii
Utility Reviewed	ATCO	FortisBC, Inc.	Toronto Hydro	Eversource	Hawaiian Electric Companies
Name	Re-Opener	Off-Ramp	Off-Ramp	N/A	Re-Opener
PBR Type	Price Cap (Elec)/Rev-per-Cust (Gas)	Revenue Cap	Price Cap	Revenue Cap	Revenue Cap
Term Length	5 Years	5 years	5 Years	5 Years	5 Years
Allowed ROE	8.50%	8.75%	8.52%	9.80%	9.50%
Earnings Sharing Mechanism	N/A	No deadband; symmetrical 50/50 sharing	Assymmetrical 100 basis point deadband, 50/50 sharing	Asymmetrical 100 basis point deadband; 75 to customers / 25 to utility sharing	Symmetrical 300 basis point deadband; 50/50 sharing for next 150 basis points; 90 to customers / 10 to utility sharing beyond
Trigger	+/-500 basis points in a single year; +/-300 basis point for two consecutive years	+/-150 basis points from allowed ROE in a single year, post sharing	+/-300 basis points, single year	(No off-ramp provision)	(1) Companies' credit rating outlook indicates potential credit rating downgrade below investment-grade status; (2) ROE exceeds or falls below the outermost ESM ROE tiers; (3) Commission discretion
Regulatory Action	Reopening is not automatic. Reopening of a PBR plan may be initiated on the Commission's own motion or on application of an interested party	Two stage process: (1) reviewing whether adjustments can improve the plan; (2) determining how to exit the plan	Distributor required report to the Board no later than 60 days after the company's receipt of its annual audited financial statements, if ROE triggered	(No off-ramp provision)	(1) Company filing; (2) Commission review of possible modifications
Possible Outcomes	Modifications to the plan, or continuation of the plan	Modifications to the plan, termination of the plan, or continuation of the plan	Modifications to the plan, termination of the plan, or continuation of the plan	(No off-ramp provision)	Modifications to the plan, termination of the plan, or continuation of the plan

3.3 Earnings Regulation Under Traditional Ratemaking

46. PBR plans constrain earnings through several mechanisms between utility rate applications,³⁶ but regulators in jurisdictions without PBR also have authority to regulate earnings between utility rate cases. U.S. state and federal regulators of energy distribution and transmission can generally adjust utility rates if such rates are found not to be just and reasonable. However, a key characteristic of these rate adjustments is that they occur on a *going forward basis*—not retroactively.
47. For example, Section 5 of the U.S. Natural Gas Act provides the U.S. Federal Energy Regulatory Commission (“FERC”) with authority to require prospective changes in the rates charged by an interstate natural gas pipeline when it can be demonstrated that the rates are no longer just and reasonable. Under Section 5, FERC has the burden of demonstrating that the currently effective rates of the pipeline are no longer just and reasonable, and of establishing just and reasonable rates.³⁷ The pertinent characteristics of FERC’s authority to adjust rates, *vis-à-vis* ATCO’s reopener proceeding, are (1) that such adjustments are only applied to rates going forward; and (2) that FERC bears the burden of proof that an adjustment is necessary.
48. While we understand that the AUC has found retroactive earnings sharing may be permitted as a reopener remedy under the “knowledge exception,” we note that this practice is uncommon. In fact, we are not aware of any instance in any jurisdiction of a regulator retroactively re-distributing a utility’s legally obtained earnings to customers, when a mechanism (like an ESM) was not in place to do so during the time that the earnings occurred. The widespread consensus in the going-forward approach to earnings regulation is a logical consequence of the well-established “Bonbright principles” described in Section 2.1, which state that the regulator and the utility maintain a regulatory commitment that provides stability to the business and to customers.

³⁶ First, a PBR plan may cap utility prices (or revenues) over a period of time, during which the utility is not permitted to adjust rates according to its cost-to-serve. Second, some PBR frameworks may return a portion of earnings to customers through an earnings sharing mechanism. Third, reopeners offer another guardrail against rates that are not just and reasonable. Performance incentive mechanisms may also adjust earnings depending on performance outcomes.

³⁷ Section 5 of The Natural Gas Act of June 21, 1938, Chapter 556 (As Amended Through P.L. 109–58, Enacted August 8, 2005). Also see FERC’s [Cost-of-Service Rates Manual](#), June 1999.

4. WHY A REFUND IS NOT THE CORRECT APPROACH

4.1 The Problem Pertained to Spending

49. Intervenors argued in Phase 1 of the reopener proceeding that ATCO's PBR2 plan provided the Company with excessive funding, but the Commission ultimately disagreed. The UCA claimed that PBR2 included unnecessary REA funding through the K-bar mechanism, and did not account for capital trackers during PBR1 which incited the company to increase capital spend, further increasing its K-bar funding during PBR2. The IPCAA agreed and stated that ATCO was not sufficiently incited to reduce capital spending in PBR1, providing it with K-bar revenue that was too high in PBR2.³⁸ However, the Commission did not find ATCO's reduced capital spending during PBR2 to be related to a flaw in the K-bar mechanism. The Commission noted that K-bar for PBR2 was based on historical capital additions in PBR1, which were subject to the full incentive properties of PBR, and noted that revenues would not always align with costs.³⁹ The AUC also concluded that there was no problem with the lack of an ESM, the X factor, or the overall design of the plan.⁴⁰ Because ATCO's revenue during PBR2 was determined by the plan's design, the Commission effectively concluded in its Phase 1 decision that there was no problem with ATCO's revenue during PBR2.⁴¹

50. Consequently, the operational flaw in ATCO's PBR framework that led to high earnings must have been a lack of spending, largely in the form of capital investment. Intervenors have also made this claim. The CCA contended that ATCO revised asset replacement criteria and safety standards in PBR2, allowing it to lower its PBR2 capital spending relative to PBR1.⁴² The UCA and CCA also singled out lower workloads, arguing that ATCO chose to not pursue certain capital projects, or could not because of the COVID-19 pandemic or supply chain issues, and the Commission agreed.⁴³ These statements

³⁸ Para 83 of Decision.

³⁹ Para 87 of Decision.

⁴⁰ Para 90 of Decision.

⁴¹ If the AUC deemed the PBR design that resulted in ATCO's revenue recovery to be flawed, the Commission would necessarily need to deem the revenue recovery of all Alberta distributors flawed, because they all operate under the same design. The Commission has not done this, which reinforces our view that it does not view ATCO's revenue to be the source of the operational flaw during PBR2.

⁴² Para 85 of Decision. However, the AUC could not conclude that capital savings during PBR2 came at the expense of safety or reliability (Para 147 of Decision).

⁴³ Para 93 and 111 of Decision.

support the idea that intervenors and the Commission primarily took issue with the magnitude and timing of spending, rather than revenues.

4.2 Accurately Estimating Harm to Customers from Underspending is Not Possible

51. If the flaw in ATCO's PBR2 plan was underspending in 2021 and 2022, the Commission has effectively concluded that ratepayers would have benefited from additional spending in these years. This "benefit" can be calculated as the value ratepayers would have received from this spending, minus the cost of the spending they bear. For instance, suppose for simplicity that the lack of spending will cause an outage lasting one hour in 2025. There is a commercial customer that will lose \$100 from this outage, implying that the customer values the spending at \$100.⁴⁴ If the Company had not underspent, the outage would not have occurred, but the spending would have led to additional rate base and K-bar, causing the customer's bill to increase by \$60 in 2025. Thus, without the spending, the customer loses \$100; with the spending, the customer pays \$60. Total damages to the customer are equal to this difference: the customer's value of \$100 minus the cost it bears in the form of higher rates of \$60, for a refund of \$40. In other words, the customer lost \$100 from the Company's underspending, which is \$40 more than the loss they would have incurred if the Company had not underspent. In theory, this exercise could be performed for each customer and year to arrive at the total dollar value of a refund.
52. This exercise would be straightforward if the notional spending were tied directly to services that customers value, as is the case in the above example. Otherwise, assigning value to notional spending in order to calculate a refund is much less clear. For instance, while it's relatively straightforward to assess how much customers would pay to avoid outages (which has been estimated in studies measuring the Value of Lost Load), it's much less straightforward or impossible to estimate the dollar value that customers place on an additional substation or updated pipe infrastructure.
53. We argue in Section 5 that a capital spending plan or PIM approach can overcome this problem and deliver potential lost value to customers (if in fact there is lost value). Specifically, with the PIM approach, customers are compensated based on reductions in

⁴⁴ The value a customer ascribes to spending can be thought of as the customer's willingness to pay for that spending in dollars. Note in this example that if the customer loses \$100 from the lack of spending, they would pay up to \$100 to avoid the outage, and thus value the spending at this amount.

service quality rather than spending, allowing for a far more precise cash transfer to customers in the event they are harmed from any underspending. Additionally, the Company is given the opportunity to optimize future spending to address service quality at the lowest possible rates to customers, funding projects that provide the most value to customers and deprioritizing projects that are less valuable.

4.3 A Refund Conflicts with the AUC's PBR Principles

54. Adhering to the AUC's PBR principles can help guide a decision that is in the best interest of stakeholders. Departure from these principles risks undermining the financial health of the Company, the interests of customers, and can weaken the incentives created by PBR going forward. In our opinion, a refund to customers conflicts with several principles.
55. First, a refund is not in line with Principle 1, which states that a PBR plan should, to the greatest extent possible, create the same efficiency incentives as those experienced in a competitive market while maintaining service quality. In a competitive market, a firm operates with an understanding of how costly discovery of new operational efficiencies will increase its profits in the future. However, in an environment of regulatory uncertainty, this is no longer the case. If the utility does not trust that it will retain the benefits of cost efficiencies, or pay the price for cost inefficiencies, it will operate much the same way as a utility under cost-of-service regulation. Likewise, if a reopener provision may be used in a manner that is not clearly defined, or used as a means of retroactive earnings sharing, the utilities will have an incentive to restrict cost efficiency—or act in other unexpected ways—as they approach the reopener trigger threshold. This point is critical to the current Phase 2 reopener proceeding. The economist Dr. Dennis Weisman calls this concept “regulatory commitment,” and states that it is key to the performance of a utility under price cap regulation. He states:

“Specifically, price (revenue) cap regulation closely approximates the incentive structure of a competitive market when the regulator’s commitment to the basic tenets of the PBR plan is a credible one. This means that the regulated firm must have confidence that changes in the level of the price (revenue) cap, as determined by the X factor, are independent of its own performance. In other words, the risk of expropriation by the regulator is minimal.

[...]

It follows that if the firm is uncertain as to whether regulatory commitments will be honored, there may be little practical difference between PBR and COSR. In this manner, a weak regulatory commitment undermines the superior incentive properties

of PBR. Under such conditions, the regulated firm would not operate as if it faced competitive market conditions and PBR Principle 1 is not satisfied."⁴⁵

56. Arguably, if a reopener operates as an ESM in disguise by simply refunding customers if ROE is too high, and that process is not well known in advance (e.g., What earnings are deemed to be a result of "efficiencies?" Is the company required to keep accounting information for all of its cost savings? What portion of earnings should be refunded?) the reopener mechanism will disincentivize saving more than an ESM. This introduces regulatory uncertainty.⁴⁶ At least with an ESM, the company knows the rules and does not worry about an unknown portion of earnings being clawed back.
57. Customers obtain financial benefits from cost savings under PBR in two ways. First, if the I-X formula is properly calibrated, rate increases are restricted from increasing over the term of the plan such that prices customers face increase no faster than increases across the utility industry. Second, at the conclusion of a PBR term, rebasing occurs. Rebasing resets the utility's revenue requirement according to its costs. In theory, the company's total costs at rebasing would be lower than the costs of an identical firm that did not operate under the superior efficiency incentives of the PBR plan.⁴⁷
58. If PBR is supposed to mimic competitive markets, customers should receive the benefits (or pay the costs) in the way that a competitive market operates. In a competitive market, when a firm finds cost reduction opportunities, it can earn an economic profit, but only temporarily. Then, other firms mimic the firm on the frontier, and the economic profit of the firm eventually disappears. After this point, the company must find further efficiencies if it seeks to once again earn an economic profit. The analogous mechanism to this competitive market phenomenon for utilities under PBR is rebasing. Namely, the firm obtains a temporary profit during the PBR term, then when the PBR term ends, rates adjust downward to the competitive price (i.e., rebasing occurs), and in subsequent years the firm's rates adjust at I-X. The rebased revenue requirement does not make sense if the company has given back the savings it earned to get to that lower revenue level.
59. Second, a refund may not be in line Principle 2, which states that a PBR plan must provide the company with a reasonable opportunity to recover its prudently incurred costs including a fair rate of return. Because the Company is now operating with a lower

⁴⁵ Dennis L. Weisman, *A Report on the Theory and Practice of Performance-Based Regulation*. "

⁴⁶ Dennis L. Weisman, "Is There 'Hope' for Price Cap Regulation?" *Information Economics and Policy*, Volume 14(3), 2002, pp. 63-64. Electronic.

⁴⁷ See, for example: Nick Crowley and Mark Meitzen, "Measuring the Price Impact of Price-Cap Regulation Among Canadian Electricity Distribution Utilities," *Utilities Policy*, 72 (2021).

rate base and K-bar in PBR3 from reduced spending in 2021 and 2022, the Company would be in the position of having to unexpectedly refund customers at a time when its revenues are lower. This may have the unintended consequence of harming its ability to raise capital for future investments and may affect the Company's ability to make necessary, prudent spending. In other words, if the operational flaw was underspending, a refund may exacerbate that problem. Additionally, a refund may operate in opposition to the Bonbright Principles related to rate and revenue stability. To claw back earnings retroactively does not provide the company with revenue stability and could cause problems for the company's near-term liquidity. This could have business implications that would adversely affect both the company and its customers.

60. Finally, a refund is not in line with Principle 5, which states that customers and the Company should share equitably in the benefits produced by the PBR plan. The Commission has noted that no reduction in service quality has been observed thus far,⁴⁸ and customers are currently benefiting in PBR3 from lower rates caused by a lower rate base and K-bar. Thus, the benefits from the Company's savings are currently shared between the Company and customers. At some point in the future, service quality may decline. We argue that customers should be compensated when this happens, but not before. If no decline occurs, no refund was necessary, and benefits to customers will be double counted. Waiting until customers are impacted ensures customers are not overcompensated and receive the appropriate transfer that is based on the reduction in service quality they experience. We believe this is best captured with PIMs, explored in Section 5.3.

4.4 A Refund Conflicts with the Precedent in Other Jurisdictions

61. Our jurisdictional review found that reopeners are not generally designed with the intent to share earnings. In other jurisdictions, reopeners are intended to remedy the root cause of the design or operational flaw in the plan on a prospective basis. This is why the outcome of re-openers is generally to either modify components of the plan or end the plan and rebase, resetting rates to align with a cost-based revenue requirement. With full acknowledgement that the AUC has stated the reopener could be used to redistribute earnings, we suggest such a remediation approach should be reserved for narrow cases

⁴⁸ Para 148 of the Decision.

where a refund acts as a correction to the root cause of the problem if the Commission intends to use the reopener tool as it is generally understood in the industry.

62. Additionally, if an issue with earnings has been found, the precedent is for rates to be corrected so that they are just and reasonable going forward, rather than set to claw back earnings from prior years. (See for example, the above discussion on Section 5 of the U.S. Natural Gas Act.)

5. RECOMMENDED REMEDY OPTIONS FOR RE-OPENER

63. To our knowledge, the Decisions setting forth PBR1 (2012) and PBR2 (2016) did not provide guidance on the specific form of remedy to resolve an issue discovered during a re-opener. Additionally, the Phase 1 decision did not direct ATCO to resolve the reopener in any particular manner. Therefore, we explore three possible remedies, discussing the strengths and weaknesses of each as they relate to the operational flaw discussed by the Commission.
64. It is our opinion that the best approach to remedying a problem of underspending within the context of an incentive regulation plan is to incent the company to spend and to do so as efficiently as possible while providing value to customers. We provide two options in this regard for the Commission to consider. Before presenting these potential remedies that incent or direct the Company to spend, we begin by analyzing ATCO's proposed approach to a financial remedy.

5.1 ATCO's Proposed Approach to a Financial Remedy

65. Some intervenors in the Phase 1 proceeding asserted that ATCO should refund customers some amount of cash for the Company's savings in 2021 and 2022. For the reasons listed in Section 4, we do not believe a refund is the appropriate approach. Nevertheless, in response to requests by some intervenors, ATCO has developed a principled approach that calculates how the Company's costs in PBR2 and revenues in PBR3 would have changed if it had spent the portions of capital and O&M savings that could not be explained by the Company in 2021 and 2022. The purpose of this calculation is to estimate the appropriate dollar value of a cash transfer between the Company and its customers.
66. Before assessing ATCO's approach, we begin by reiterating a description of the ideal way to determine the magnitude of a refund to customers in exchange for underspending, if

such a refund were appropriate. This approach would require an estimate of the value of spending to customers. A refund should be equal to that value minus the portion of the cost of the spending borne by customers. This is the net value to customers of such spending.⁴⁹ However, it is difficult to know how much customers would have valued additional spending as it is not directly tied to outcomes that are important to ratepayers like service quality and safety, and so the correct refund cannot be calculated accurately using this “ideal” approach.⁵⁰

67. As such, ATCO has developed a principled, “second best” approach that calculates the cost impact of the portion of savings in 2021 and 2022 that was not proven to be the result of cost efficiency initiatives. (The Company assumes the impact of notional spending in 2021 and 2022 should be analyzed holding fixed decisions made before 2021, as the Commission has noted that no problem arose in those years.⁵¹) ATCO has made this calculation for the years 2021 and 2022 when those costs are borne by the Company and also from 2023 onward when those costs are borne by ratepayers in the form of a higher rate base and K-bar. By focusing its remedy on the impact of spending on costs, the Company has implicitly assumed its actual spending decisions in 2021 and 2022 were prudent, in that additional spending would not have benefited customers.

68. Overall, we find the Company’s methodology to be reasonable and represents a principled approach given the underlying assumption of prudent spending. In particular, we agree that the effect of notional spending in 2021 and 2022 should be analyzed holding fixed decisions made before 2021, as the Commission has noted that no problem arose in those years. In addition, we agree that any capital overfunding should be corrected by O&M underfunding given the single envelope approach. If the Company had spent unexplained capital savings, it would have less revenue to cover its O&M underfunding, and this must be accounted for. We agree with both of these assumptions given the Commission’s decision and the single envelope approach in PBR2. Finally, we find the Company’s approach to calculating the impact of notional spending in 2021 and 2022 on rate base and K-bar beginning in 2023 to be valid.

⁴⁹ See Section 4.2 for an example that explains why this net value is the appropriate refund to customers.

⁵⁰ For instance, a customer may lose \$100 from an outage lasting an hour and thus values uninterrupted service for an hour at \$100. This could be estimated using a Value of Lost Load study. However, the value associated with \$1,000,000 in tree trimming expenses or vehicle repairs would also require an understanding of the relationship between spending and service quality, which is far more challenging to quantify accurately.

⁵¹ Para 166 of the Decision.

69. If spending the unexplained savings had yielded no additional value to customers or the additional value was outweighed by costs as calculated by the Company, we agree with ATCO that no refund is warranted. This is because the refund, which should be equal to the value customers ascribe to additional spending minus the cost they bear, is actually negative in this case, meaning that customers *benefited* from the Company's decision not to spend.
70. In short, ATCO's argument that no refund is necessary is theoretically correct when additional spending would not have benefited customers enough to outweigh the additional costs calculated by the Company. To the extent intervenors argue that a refund is necessary, they are implicitly arguing that customers would have benefited from spending more than they would have paid via rate increases from that spending. Because of the challenges associated with measuring the value customers ascribe to spending, rather than outcomes, it is not possible to deduce the correct value of a refund, as noted in Section 4.
71. However, we offer two options for a remedy which depend on the beliefs of the Commission about the value of additional spending to customers. If the Commission is certain that the net value of additional spending to customers is positive but is unable to measure its magnitude to quantify a refund, it can direct the Company to spend. By doing this, ratepayers will receive the net value of that spending without the Commission needing to quantify it. We discuss this option below in Section 5.2.
72. If the Commission is uncertain about whether customers would have benefited from additional spending to justify the increase in rates beginning in 2023 or is uncertain about which projects the Company should undertake to add sufficient value to customers, it can attach a financial penalty to a reduction in service quality. In this case, if the spending was not worth the cost, the Company will minimize additional spending and continue to deliver high-quality service to customers. If that spending was worth the cost, implying that the Company's service will eventually measurably deteriorate if it is not corrected in the future, the Company will spend efficiently to avoid the penalty. If it is unable to do so, customers will receive a cash transfer in the form of a financial penalty. This option, which involves PIMs, is our recommended approach, as it encourages efficient spending, delivers value to customers, and reduces regulatory burden, and is thus in the spirit of incentive regulation.

5.2 Alternative Option 1: Commitment to Spend

73. If it is the belief of the Commission that the value of notional spending in 2021 and 2022 would have exceeded the cost to ratepayers, the appropriate remedy is for the Company to spend the portion of unexplained capital and O&M savings that would have added net value to customers. Our proposed "Option 1" is a Commission direction to the Company to undertake prudent spending. This option has a precedent in the 2011 Steel Mains Replacement approach, wherein the Commission directed ATCO to shift \$20.3 million out of capital additions in 2011 and have those additions reflected in 2015, 2016, and 2017. However, in this case, the AUC would have ATCO move a portion of underspending in 2021 and 2022 quantified by the Commission to a future date, where ATCO would spend this amount on necessary projects.
74. Ideally, these projects would address issues raised by intervenors. Candidates for spending initiatives include projects not completed in 2021 or 2022 because of COVID or supply chain issues, or any lack of spending the Commission believes caused or will cause a reduction in service quality, safety, and reliability. We offer the following guidelines for a spending plan in order for it to be consistent with the AUC's PBR principles:
75. The spending should be reflected in the last two years of PBR3 in 2027 and 2028 and capital additions should be incorporated into rate base and K-bar thereafter, in order to mirror what would have happened had the Company spent the unexplained savings in 2021 and 2022, which were the final two years of PBR2. The Company is already operating with a lower rate base and K-bar because of its realized efficiencies in 2021 and 2022, and we believe that asking the Company to delay rebasing capital additions longer than it would have had it spent that capital in 2021 and 2022 (when rebasing would have occurred in 2023) is inconsistent with AUC's PBR Principle 2.
76. A reasonable case must be made that customers benefit from additional spending at a value in excess of the incremental cost associated with the spending, in order to be consistent with the AUC's Principle 1.⁵² Note that in a PBR plan, the Commission directs the Company to achieve certain benchmarks related to service quality, safety, and reliability. It is then up to the Company to determine whether or not certain capital projects are worth the cost of meeting those benchmarks. If a particular project will not improve service quality, the Company will not spend. This would be in the best interest of customers since customers will eventually pay for those additions at rebasing and will

⁵² In competitive markets, goods and services are offered if and only if the value provided to society is greater than the cost.

receive no additional service value. Any spending plan directed by the Commission must only incent efficient spending.

77. While a spending plan directed by the Commission is feasible, it is not without its drawbacks if the plan is unable to satisfy this latter principle of incenting *efficient* spending. It can be difficult for a regulator to have insight into projects whose value exceeds the cost. As such, we believe our Option 2, below, satisfies the same goal of incentivizing efficient spending and has the additional advantage of reducing regulatory burden by placing the onus on the Company to determine where spending that is in the best interests of customers should occur, rather than the Commission, which possesses imperfect information in this regard.

5.3 Alternative Option 2: Performance Incentive Mechanism

Conceptual Description of Approach

78. By concluding that the flaw present in ATCO's PBR2 plans that caused it to exceed the ROE threshold for a re-opener was not related to any of the design elements that determined its revenue during the term, the implication is that the Commission believes the Company did not spend enough in 2021 and 2022. We believe the factor determining whether or not spending should have occurred should be unrelated to whether or not the Company can explain the lack of spending, but instead should be whether or not the value to ratepayers created by such spending exceeds its cost.
79. We have noted above that a refund is difficult to calculate because it depends on an accurate estimate of how customers value notional spending as opposed to the service quality affected by that spending; customers only value spending insofar as it benefits them in the form of higher service quality. We have also argued that customers should only be compensated if a lack of spending actually resulted in a reduction in service quality, and should be compensated when this reduction occurs, if it occurs at all.
80. A Performance Incentive Mechanism ("PIM") is a way of implementing a cash transfer that accurately compensates customers for any underspending at the time customers are impacted. If underspending occurred such that customers are harmed through a measurable reduction in service quality, they are compensated at a dollar amount that approximates the value customers ascribe to that reduction in quality. This dollar amount takes the form of a penalty payment made by the Company to customers when the reduction in quality is measured. Assuming the Company did in fact underspend during

the years 2021 and 2022, under a PIM, it will spend in the future to avoid the penalty, providing customers with the value of that spending net of the cost they will bear in rate increases. If it did not underspend, customers will experience no decline in quality at reduced rates, and no refund is necessary.

81. To understand how a PIM accomplishes efficient spending and appropriately compensates customers when they have been harmed, consider the following possible scenarios.

- i. The Company's savings in 2021 and 2022 did not adversely affect its service metrics going forward. In this case, any notional spending would not have been in the best interest of customers since they would have experienced rate increases with no increase in service quality.
- ii. The Company's savings in 2021 and 2022 did adversely affect its service metrics going forward, but the loss in service quality value was smaller than the cost of the spending. In this case, the Company should not spend for the same reason as (1) which is in line with PBR Principle 1: the cost of the spending outweighs any value it provides to customers, an inefficient and undesirable outcome. In this case, the Company would pay the penalty which is equal to the value of the spending to customers, as this is smaller than the cost it would incur from the spending.⁵³
- iii. The Company's savings in 2021 and 2022 did adversely affect its service metrics going forward, and the loss in service quality value was larger than the cost of the spending. In this case, the Company should spend according to the AUC's PBR Principle 1, and does so because the penalty for not spending exceeds the cost of the spending.

82. Thus, by setting a penalty-only PIM tied to service quality, the Company avoids wasteful spending that would not have added sufficient value for customers, and spends when ratepayers receive the benefits from that spending in excess of cost. This approach allows the Company to prove that it spent prudently during PBR2, either by not spending the unexplained savings going forward and maintaining service quality, or by spending the portion of those savings that adds a level value to rate payers that is worth paying for in the form of higher rates. In other words, this approach forces the Company to face the consequences of its spending actions. If the Company continues to meet or exceed its service quality thresholds, this is an indication that its spending plan in PBR2 was

⁵³ The Company may spend to avoid the penalty however, given that it eventually receives a return on capital investments after rebasing. This long-term consideration likely biases the Company toward investing in this case.

prudent. If not, the Company must spend or pay a penalty. Notably, this penalty would persist each year until service quality improves.

83. PIMs also have another theoretical advantage as a remedy, relative to a refund. An immediate refund would worsen the Company's financial position before any material degradation of service occurs, thereby reducing its ability to respond if underinvestment has harmed its system. A PIM, on the other hand, does not diminish the Company's finances until some material harm occurs. This provides an ex-ante incentive to act before service quality declines and, at the same time, allows the Company to retain the resources necessary to address such problems.

ATCO Electric: SAIDI PIM

84. We propose a reliability PIM for ATCO Electric based on the company's SAIDI metric, excluding major events. This is a metric that the company currently reports, which means it can be readily used without a requirement for new measurement systems. SAIDI serves as a reasonable proxy for company service quality, and over time reflects the company's investment in physical capital, as well as operations expenses on aspects of the business that are necessary for providing continuous service to customers. The SAIDI metric has been sanctioned by the AUC as a useful measure through the Commission's Rule 002 decisions.⁵⁴ In addition, this is a metric widely reported by utilities across North America, and is a relatively common PIM where such tools are currently in place.

85. The details of the proposed PIM for ATCO Electric are as follows. The Company will establish a ten-year average SAIDI (excluding major events) using the years 2014 through 2023, as well as the standard deviation of these SAIDI values. If the Company exceeds this baseline by one standard deviation in any given year, it will face a 10-basis point penalty to its allowed ROE. For example, using the Company's 2022 value of equity, this would translate into a return of 1.28 million to customers if the Company exceeds 5.53 hours per customer. If the Company exceeds the baseline value by two standard deviations, it will face a penalty of 40 basis points. Thus, this is a "penalty-only" PIM. The Company receives no reward for adequate (or better) service, but must pay a price if reliability degrades. Any penalty refund to customers would occur as part of the Company's subsequent annual rate adjustment filing after adjusting for the Company's

⁵⁴ "Rule 002: Service Quality and Reliability Performance Monitoring and Reporting for Owners of Electric Distribution Systems and for Gas Distributors," Alberta Utilities Commission, Effective December 17, 2020.

earnings sharing mechanism. The PIM will be in effect beginning in 2025 and be reassessed at the end of the PBR3 term.

86. Note that the numbers in the paragraph above are illustrative, as ATCO's SAIDI measure excluding major events does not capture all relevant influences on SAIDI that are outside of the company's control. For the purposes of calculating a financial penalty for this PIM, the Company will adjust its SAIDI measure for the following items: (1) Interruptions that are resolved within 5 minutes or less; (2) Private customer outages; (3) Planned outages; (4) Loss of External Supply; (5) Public Safety directed outages; (6) Major Event Days.
87. The tiered approach to this PIM reflects an increasing cost of reliability degradation if reliability worsens. Tables 3 and 4 provide the details for our proposed design for ATCO Electric's SAIDI PIM. Note that the dollar values in these tables are illustrative, as the Company will need to file annual updates to account for changes in equity.

Table 3: ATCO Electric: Baseline SAIDI, Excluding Major Events (2014-2023)

Year	ATCO SAIDI (Excl. Major Events)
2014	6.04
2015	4.81
2016	4.81
2017	4.98
2018	4.23
2019	4.32
2020	4.09
2021	4.41
2022	4.85
2023	5.99
10-Year Average	4.85
Std Dev	0.68

Table 4: Triggers and Penalties, ATCO Electric SAIDI PIM

	SAIDI Threshold	Penalty (ROE bps)	Penalty (Millions CAD)
Trigger 1	5.53	10	1.28
Trigger 2	6.21	40	5.13

88. The structure of this proposed PIM draws upon lessons from existing PIMs used in the United States. Implementation of different penalty tiers follows the approach used by Duke Energy Progress in North Carolina, which has different penalty amounts associated with different SAIDI thresholds.⁵⁵ Of the utilities reviewed for this analysis, all rely on a baseline set using the company's own historical SAIDI performance. This results in a PIM that is defined by the utility's own operating circumstances, which may differ from region to region.

89. Because this PIM may penalize the Company each year, failure to make proper reliability investments could result in financial consequences over as many years as it takes to correct the problem. This provides the Company with a strong incentive to spend on maintaining system reliability and avoid any underinvestment before system degradation manifests itself through reliability declines. This highlights an additional advantage to the PIM approach to remedying ATCO's operational problem: whereas a refund could be used

⁵⁵ See here: <https://www.duke-energy.com/home/billing/pims-tracking>

to provide retroactive compensation for service quality declines, a refund—at least, in the form of a reopener—does not work to prevent service quality degradation from happening in the future. The job of a PIM is to do just that.

90. We recognize that climate change may give rise to an increased likelihood of weather events (e.g., wildfires) that could increase ATCO's SAIDI metric over time. Since the baseline SAIDI measure uses historical data, this could result in an increased penalty frequency in the future for reasons beyond the control of the utility. If such circumstances outside of the utility's control arise, the utility or other interested parties should be able to petition the Commission for changes to the PIM.

ATCO Gas: Unplanned Outages PIM

91. The proposed PIM for ATCO Gas ties a financial penalty to an increase in the frequency of unplanned outages, measured in two ways: (1) the number of customers impacted by an unplanned outage; and (2) the frequency of unplanned outage events. Unplanned outages are a reasonable proxy for system reliability, as outages are more likely to occur on a gas distribution system that has not received adequate investment. A similar metric is used as a PIM among gas distributors in Great Britain. In developing a PIM for ATCO Gas, we determined that the Company's existing reported metrics under Rule 002 focus on outcomes associated with O&M spending, but not on capital spending. We recommend that ATCO's reported metrics include a new, additional metric that reflects the effect of capital spending on service quality. When sufficient data is available for a baseline average, a financial penalty will be imposed when unplanned outages exceed a threshold relative to this baseline.
92. The Company currently records some information on unplanned outages for its gas distribution system. However, the Company has not previously reported such a metric to gauge service quality. Therefore, ATCO Gas will be required to expand its outage record system for the purposes of administering the gas outage frequency PIM.
93. The expansion of ATCO's outage reporting system will provide long term informational value to its operations under PBR beyond the financial and reputational incentives associated with its performance. Under ATCO's current reported metrics under Rule 002, the Company reports several metrics associated with operating expenditures (e.g., meter reading, work completion, worker safety, emergency response time, call center response time), but it does not report metrics that would materially tie to the investment in physical capital. This new metric introduces annually reported data that reflects the service quality effects of capital investments (or underinvestment) by the Company. As

such, it is an operational change that will improve its investment incentives and provide value to customers.

94. ATCO will begin recording unplanned outage information beginning in January 2025. After three years, the Company will have sufficient data to establish a “baseline” average upon which it can apply a financial incentive. The Unplanned Outages PIM for ATCO Gas would have a similar structure to the SAIDI PIM, described above. It would be a penalty-only PIM with two tiers. These tiers would be based on a historical baseline average of three years initially, using one- and two- standard deviations as the thresholds for each penalty. Each tier would correspond to a penalty of a 10 and 40 basis point reduction to the Company’s allowed ROE each year.
95. While this PIM requires the company to take action to change its reporting systems, these costs will not be borne by ATCO’s customers. The rate (for ATCO Electric) and revenue (for ATCO Gas) trajectories under PBR3 have already been established. Thus, this metric provides informational improvements, new incentives, and an operational remedy for ATCO Gas’s reopener—all at no cost to consumers. We believe this to be a step forward in addressing the Commission’s past concerns about utilities maintaining physical capital under PBR (see PBR2 Decision regarding asset condition monitoring).
96. As with ATCO Electric’s SAIDI PIM, metric results will be reported annually, and the mechanism concept will be reassessed at the conclusion of PBR3.

Additional Considerations

97. We have proposed a SAIDI PIM for ATCO Electric and an Unplanned Outages PIM for ATCO Gas as remedies to the operational flaw identified by the Commission. In general, PBR plans with Performance Incentive Mechanisms contain PIMs that both reward and penalize the Company for achieving or failing to achieve particular service quality benchmarks. However, because this is intended to be a remedy to ATCO’s operational flaw, this proposal only considers PIMs with associated penalties.
98. If the Commission adopts the proposed PIMs, it may find it worthwhile to expand on this proposed set in the future. If this is the case, we would strongly advise the AUC to conduct a jurisdictional review of other PBR plans with PIMs in order to ensure that the Company has the opportunity to balance any downside risk with rewards for improved performance.

6. CONCLUSIONS

99. The Commission determined in Phase 1 of ATCO's reopener proceeding that a problem existed during 2021 and 2022 with ATCO's operations but not the PBR2 framework design. We understand this to mean that the Commission found that ATCO's elevated ROE in 2021 and 2022 did not result from a problem with revenues collected, but rather with the Company's spending during those years. This report, as evidence in ATCO's Phase 2 reopener proceeding, offers analysis and options regarding the remedy for the operational problem identified by the AUC.
100. A refund to customers does not provide a just and reasonable remedy. A refund in the form of a cash transfer to customers does not solve the operational spending problem that we understand the AUC has identified. If the Company is required to provide a refund, the operational problem is therefore likely to persist. In addition, the Company (and other distributors in Alberta) may lose trust in the PBR framework, perceiving a reduced regulatory commitment to the principles of PBR. A refund also cannot be accurately calculated, as the value customers ascribe to additional spending is not known.
101. We understand ATCO has calculated how the Company's costs and revenues would have changed if it had spent the portions of capital and O&M savings that could not be explained by the Company in 2021 and 2022. We have reviewed this approach and have made comments on the implicit assumptions required to use this methodology as a basis for calculating a cash transfer. Overall, we find the Company's methodology to be reasonable and represents a principled approach given an assumption of prudent spending by the Company.
102. On the other hand, if the Commission is certain that the net value of additional spending to customers is positive but is unable to measure its magnitude to quantify a refund, it can direct the Company to spend. ATCO could commit to spending on necessary and prudent projects. We comment on the benefits and drawbacks of this approach in Section 5.2.
103. Alternatively, ATCO could be placed under PIMs that incent the Company to spend prudently. We recommend this approach because it addresses the problem as described by the AUC and intervenors (i.e., underspending); proactively confronts potential consequences of underspending on necessary projects, rather than retroactively; provides the utility with the ability to determine what capital spending is valuable; is in line with principles of PBR; and has substantial precedent in other jurisdictions. For both ATCO Electric and ATCO Gas, we propose tiered penalty-only PIMs that impose more

stringent financial consequences as reliability metrics indicate worse service quality. Under this approach, customers would receive a cash transfer if, indeed, ATCO's underspending results in declines in service quality. Otherwise, customers will still retain the benefits of reduced spending in the form of lower rates in PBR3. The PIM approach is simpler and less costly to implement relative to the refund approach because it does not require a near impossible calculation of the value of *spending*—but rather, it draws upon value of service quality to customers. The details of this proposed option can be found in Section 5.3.

104. The purpose of PBR is to regulate the electricity and gas distribution sector using incentives for utilities to obtain maximum value at least cost. For the reasons described in this report, a refund approach to addressing ATCO's reopener operates in opposition to the principles of PBR. On the other hand, a PIM refocuses the remedy to this reopener on the value of quality service to customers, rather than attempting to divine the value to customers of all potential spending by the Company. The PIM approach allows the Company to determine the least cost way to provide value to customers, which is the ultimate goal of PBR.