2007 Annual Report by the Public Utilities Commission
To the Utilities and Energy Committee
On Electric Incentive Ratemaking and Actions Taken by the Commission
Pursuant to 35-A M.R.S.A. § 3195

35-A M.R.S.A. § 3195 authorizes the Public Utilities Commission (Commission) to adopt rate mechanisms that promote electric utility efficiency. Subsection 5 of § 3195 states:

> **Annual Report.** The commission shall submit to the joint standing committee of the Legislature having jurisdiction over utilities matters an annual report detailing any actions taken or proposed to be taken by the commission under this section, including actions on mechanisms for protecting ratepayers from the transfer of risks associated with rate-adjustment mechanisms. The report must be submitted by December 31st of each year.

This report provides background information about the use of alternative rate mechanisms in Maine and describes Commission actions taken during 2007 regarding mechanisms that promote electric efficiency through incentive rate plans.

I. BACKGROUND

Since 1995, several Maine utilities have operated under Alternative Rate Plans (ARPs). These plans replace traditional rate of return regulation[1] with a multi-year price cap approach that places an upper limit on the utility's rate increases, while allowing the utility to retain savings it accomplishes through improved efficiencies. ARPs, as a general matter, create rate predictability and stability, reduce regulatory costs, and provide stronger incentives for utilities to minimize their costs. However, if not properly structured, ARPs can disincentivize investment and maintenance activities by utilities and undermine other goals of public policy, such as energy efficiency. During 2007, two of the state's investor-owned utilities, Central Maine Power Company (CMP) and Bangor Hydro-Electric Company (BHE), operated under ARPs which both expired on December 31, 2007.

A. CMP

On November 16, 2000, the Commission approved a second Alternative Rate Plan (ARP 2000) for CMP. CMP's ARP 2000 was a seven-year plan, which commenced on January 1, 2000 and expired on December 31, 2007. The plan provided for annual rate changes on July 1st of each year, which were based on a well-established formula of inflation minus a productivity offset, adjusted for mandated costs, earnings sharing and service quality index penalties. CMP's final ARP 2000 annual price change occurred on July 1, 2007.

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[1]Rate of return regulation is a regulatory approach in which the Commission examines all reasonable expenses a utility is likely to incur and establishes rates that will allow the utility, if operated efficiently, to recover those expenses and earn a reasonable return on its investments.

B. BHE

On June 11, 2002, we issued an Order which approved a Stipulation, entered into by BHE, the Office of the Public Advocate (OPA), and Georgia-Pacific Company, to establish an ARP for BHE. The BHE ARP, as it was referred to in the Stipulation, took effect on the date of the Order and also ran through December 31, 2007. The Stipulation provided for annual rate changes commencing on July 1, 2003. The rate changes occurred in accordance with an Annual Percentage Price Change formula, which was composed of Basic Rate Reductions, Mandated Costs, Net Capital Gains and Losses, Earnings Sharing and Service Quality Penalties. The ARP Stipulation also established service reliability and customer service performance levels and subjected BHE to penalties of up to $840,000 if BHE's performance drops below the established levels.

II. REPORT TO THE LEGISLATURE ON THE EFFECT OF ALTERNATIVE RATE PLANS ON GRID RELIABILITY

A. Prior Commission Reports

During its 2003 session, the Legislature passed an Act to Encourage Energy Efficiency and Security (Act).[2] The Act directed the Commission to investigate regulatory mechanisms and rate designs that provide incentives for transmission and distribution (T&D) utilities to promote energy efficiency and the security and robustness of the electric grid.[3] As required by the Act, the Commission submitted a report to the Joint Standing Committee on Utilities and Energy (Committee) on February 1, 2004 (February 1, 2004 Report). In the February 1, 2004 Report, the Commission stated that it believed that ensuring adequate service reliability through objective service quality metrics backed by meaningful penalties incorporated as part of a utility's alternative rate plan, along with the Commission's ability to use its traditional tools to ensure adequate service, was working well. Accordingly, the Commission recommended that no legislative changes be made in this area. The Commission stated that it would continue to monitor Maine's T&D utilities' service quality performance and refine the standards and penalty mechanisms in ways that improve their operation.

During the Commission's presentation of the February 1, 2004 Report, the Committee indicated that it was interested in the continued examination of certain issues associated with grid reliability and security. In a letter to the Commission dated February 23, 2004, the Committee requested that as part of this follow-up examination, the Commission specifically:

1. Quantify the safety margin of the grid system, including such indicators as maintenance activity, and analyze how the margin may have changed over time, particularly as the result of alternative rate plans and restructuring;

[2] P.L. 2003, ch. 219.

[3] For purposes of that investigation, the Commission interpreted the term "security and robustness" to mean reliability of the system rather than protection against terrorist attacks.

2. Assess the adequacy of grid security in light of the events of 9/11 and the blackout of 2003;

3. Examine issues of grid adequacy in remote areas, e.g., Washington County, including looping issues; and

4. Review relevant information including information from transmission and distribution utilities and reports on the blackout of 2003.

The Committee requested that the Commission submit a report with its findings and recommendations during the next legislative session.

On April 29, 2004, the Commission initiated an Inquiry for the purpose of conducting the study requested by the Committee.[4] On June 17, 2005, the Commission provided its Final Report to the Committee in response to our Inquiry (June 17, 2005 Report). As discussed in the June 17, 2005 Report, the Commission found that, in most respects, the utilities were adequately operating and maintaining the grid. In certain respects, however, our examination revealed signs of potential shortcomings that warranted further and more in-depth review. In particular, we concluded that certain aspects of CMP's distribution system and operation and maintenance practices should be examined. On an overall basis, the Commission found that CMP was maintaining its distribution system to meet the requirements of ARP 2000 and therefore, on a system level, CMP's distribution system appeared to be adequate. However, the Commission was concerned by the disparity between CMP's worst performing circuits and its overall system performance and the nature and scope of CMP's improvement program. This concern was heightened by CMP's previous suspension of its distribution inspection program, the aging of CMP's plant, an increase in the number of outages, and what appeared to be inadequate record-keeping in CMP's distribution planning and maintenance operations.

The Commission and CMP agreed that this was an appropriate time to further review CMP's distribution system as a means of addressing the areas of concern raised during the Commission's general review, as well as to clarify any areas of misunderstanding between CMP and the Commission which may have arisen as a result of the general review. This further examination would not only shed light on CMP's maintenance practices but also might provide some indication of the efficacy of the performance standards in ARP 2000.

B. <u>The WCI Report</u>

On September 1, 2005, the Commission issued a Request for Proposals for the purpose of selecting an independent party to conduct the further review discussed above. After an extensive evaluation process, which included input from CMP, the Commission selected Williams Consulting, Inc. (WCI) to conduct the review.

[4]The Commission inquiry was docketed as *Maine Public Utilities Commission, Inquiry into the Adequacy of the Electric Grid in Maine,* Docket No. 2004-248.

On December13, 2005, the Commission initiated an Inquiry, Docket No. 2005-705, to serve as the vehicle for conducting the further review. WCI's review included:

- Interview meetings with 29 CMP management, technical, and field personnel;
- Development and analysis of 182 data requests to CMP;
- Development of a statistically valid sample designed to represent the overall electric distribution system;
- Independent physical field inspections of 16 circuits, including 2,597 poles, to assess the condition of the overall distribution system;
- A review and evaluation of CMP's distribution record keeping practices;
- Review and evaluation of the Company's Field Operating Procedures related to distribution system operation and maintenance procedures and practices; and
- Periodic meetings with Commission staff, Commissioners, and CMP management in Augusta, Maine.

On February 26, 2007, WCI submitted its "CMP Distribution Plant Evaluation – Final Report" to the Commission. Based on its study, WCI found that:

- CMP has achieved a high level of information system integration and development of support tools. Based on WCI's experience, it believed that CMP was among the leaders in the utility industry. CMP has developed its smartmap system that is driven by the GIS and contains comprehensive mapping and customer information. In addition, the system contains historical outage data by circuit, device and cause and tracks individual segments of circuits for vegetation management by year.
- CMP's stated approach to reliability performance was to "manage to the ARP targets." While this may be understandable from a cost perspective, it virtually assures that CMP's reliability performance will not improve.
- The current ARP targets for Customer Average Interruption Duration Index (CAIDI) and System Average Interruption Frequency Index (SAIFI)[5] appear to be a protective minimum or floor intended to assure reliability performance does not deteriorate. These annual targets have always been met by CMP and have been adjusted several times in the recent past to accommodate changes in reporting levels and exclusions. The

[5] CAIDI is intended to measure, on average, the duration of service interruptions. SAIFI is intended to measure, on average, the frequency of service interruptions.

current ARP targets are measured at the Company level and do not provide targets at the Service Center or circuit level.

- Although within ARP reliability targets, CMP's reliability performance falls into the third quartile (i.e., poorer than average performance) for CAIDI, as compared to the Institute of Electrical and Electronic Engineers (I.E.E.E.) survey of U.S. utilities. Further, CMP's SAIFI falls within the fourth quartile (i.e., worst performers), and has been increasing (getting worse) during the period 2001-2005.

- CMP identifies its 10 worst performing circuits annually and focuses efforts to improve their performance so that they fall from the list during the year following remediation. However, a number of worst performing circuits remained on the list in subsequent years. Additionally, these circuits were selected based on their "contribution" to system-wide SAIFI and CAIDI.[6] While remediation efforts for these circuits will bring about overall system-level reliability improvement, there is no guarantee that worst performing circuits measured at the Service Center[7] or circuit level are being adequately addressed.

- CMP has significantly reduced the percentage of outages caused by animal contact through its pro-active program of installing animal guards on distribution transformers. However, CMP's tree related outages are among the highest in the industry. During 2005, they accounted for 42.3% of the outages compared to Edison Electric Institute's (IEE) U.S. average of 21%. This clearly indicates that vegetation management presents significant improvement opportunities.

- Tree related outages appear to be more frequent in areas with lower customer density. This implies that the Company focuses its vegetation management and overhead lines maintenance resources on its more heavily populated service areas. Given the ARP targets and measurements, this is not surprising.

- CMP's overhead distribution plant appears to be in good mechanical and electrical condition. CMP has undertaken a number of pro-active

[6] System-wide SAIFI and CAIDI are based on the total number of customers for the system in the denominator of the calculation; while the circuit's connected customers is part of the numerator calculation. So a circuit's "contribution" to system-wide figures will assign a higher contribution for those circuits with higher number of connected customers than for those with fewer connected customers, assuming the same number of outages and restoration times.

[7] CMP manages its distribution system through 11 Service Centers geographically spread through its service area at Portland, Alfred, Augusta, Bangor, Brunswick, Dover Fairfield, Farmington, Lewiston, Portland, Rockland and Skowhegan.

programs to improve the performance of the system, such as the focused animal guard program.

- CMP does not employ a cycle trim program. CMP sets an informal goal of trimming 15% to 20% of its 3-phase circuits annually. However, these circuits only comprise 20% of the system. The remaining 80% are planned for trim on a reactive basis. While the arborists have good analytical tools to plan the trim program, the level of funding for distribution vegetation management is the constraining element. Based on WCI's field observations and professional experience, the state of vegetation encroachment was found to be less than satisfactory.

- Annual distribution vegetation management program budgets and actual expenditures have remained relatively flat over the past five years, while tree-related outages have increased each year.

- Based on its physical condition inspection results, WCI found that CMP faced a significant risk of outages due to vegetation encroachment on the overhead primary distribution system. The risk includes events such as tree fires, momentary customer interruptions, flickering lights, damage to customers' equipment, hazard to the general public, and increased recloser operations. This later event would require CMP to inspect and/or replace reclosers more frequently. Between 12.7% ad 19% of CMP's circuits have vegetation in direct contact with the conductor. Another 15.8% to 23.8% of the circuits have vegetation within 3 feet, which is likely to pose a risk to the system within one year.

Based on the findings set out above, WCI made the following recommendations in its Final Report:

- Continue current reliability performance reporting at system level. Individual circuits that exceed 1 standard deviation[8] above the ARP targets should be identified and mitigation efforts stated and followed by CMP as part of an expanded reporting requirement to the Commission.

- Along with the changes to the vegetation management program, consider tightening ARP targets such that CMP's SAIFI reliability performance improves into the third quartile of national reliability performance within a period of 3 years.

- Consider providing CMP with an incentive for exceeding ARP targets. For example, a provision to permit rewards that would encourage CMP to go beyond managing to the ARP targets and promote continuous reliability improvement programs.

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[8] Standard deviation is the most common measure of statistical dispersion, measuring how spread out the values in a data set are.

- CMP should review its Distribution Engineer complement and the status of their capability to conduct sufficient long-term planning studies to accommodate both immediate needs and longer-term system needs.

- CMP should maintain a listing of all proposed betterments and provide updates that indicate the disposition of the proposed betterments. For example: completed, budgeted, deferred, no longer needed (with explanation).

- CMP should enhance its formal 10-year circuit inspection program (that was implemented in 2005) as follows:

  - Extend visual inspection to include pole sounding and visual check from the base of each pole.

  - Include assessment of the status of vegetation encroachment in the inspection report – categorize by contact, danger tree, and within specified clearance ranges. This information should be shared with Vegetation Management to assist in their planning.

  - As the distribution system continues to age, implement specially focused inspection programs that further identify requirements for preventative maintenance actions.

  - Modify the current reactive vegetation management program and provide sufficient budget funding to implement a proactive tree trim cycle of 4 to 5 years. In order to accomplish this, CMP should develop a formal estimate of annual costs to maintain a 4-5 year trim cycle as well as the additional up-front expenditures required to reach a 4-5 year cycle within a reasonable time frame.

The Commission has requested that CMP respond to WCI's findings and recommendations in the context of the Commission's current revenue requirements/ARP renewal investigation proceeding discussed below.

III. CMP ARP ACTIVITY IN 2007

A. Annual Filing Proceeding

On March 15, 2007, CMP submitted its final annual ARP price change filing in accordance with the terms of the Commission's ARP 2000 Order. In its initial filing, CMP proposed a distribution rate increase of 1.52%, including a $190,000 penalty resulting from CMP's failure to meet the SAIFI target component of its Service Quality Index. On April 11, 2007, CMP submitted a supplemental filing to reflect additional Electric Lifeline Program (ELP) costs inadvertently not included in its March 15th filing, to correctly calculate carrying costs on the Grid Reliability Study and to update the inflation rate for 2006 that is used in the price index formula. On June 14, 2007, the Commission received a Stipulation entered into by CMP, the OPA and the IECG which proposed to resolve all issues in this case and agreed to an overall increase of 1.62% for this year's price change. The Stipulation was approved by the Commission in an Order dated June 27, 2007, and the 1.62% price increase agreed to in the Stipulation took effect on July 1, 2007, including the SQI penalty of $190,000 (-0.08%) as proposed by CMP, for failure to meet the SAIFI metric.

B. CMP ARP Renewal

Pursuant to the terms of the ARP 2000 Stipulation, CMP submitted revenue requirement information on May 1, 2007 to be used by the Commission to decide what rate actions, if any, should be taken at the end of the ARP. In its May 1st filing, the Company recommended that no rate change occur at the expiration of the current ARP and that the Commission adopt a new ARP, ARP 2008, as part of this proceeding.[9] As part of its May 1st filing, CMP responded to the findings and recommendations contained in the WCI Report and proposed a Reliability Improvement Program as part of its ARP proposal. The OPA has submitted testimony and Commission staff has submitted a Bench Analysis in response to CMP's proposal. Hearings are scheduled for February 2008 in this matter, and we expect to issue a decision this spring.

IV. BHE ARP ACTIVITY IN 2007

A. Annual Price Change

On March 15, 2007, BHE submitted its annual filing pursuant to the ARP Stipulation. BHE proposed to decrease core distribution rates by 1.59% as its Annual Percentage Price Change which included a proposed increase of 136,791 (0.25%) for mandated costs. On June 18, 2007, BHE, the OPA and the IECG filed a Stipulation that proposed to resolve all issues raised in the proceeding and on June 27, 2007, the Commission issued an Order Approving Stipulation. Pursuant to the Commission's Order, BHE reduced its core distribution rates by 1.84% to take effect on July 1, 2007. This 1.84% overall distribution rate decrease was comprised of three components: (1) the Basic Rate Reduction (inflation minus productivity offset) of -2.00%; (2) a decrease of -0.07% associated with Low Income Program cost adjustments; and (3) an increase of 0.23% associated with the reconciliation of Electric Space Heat revenues.

B. Renewal Activity

Similar to CMP, BHE was required to submit financial and revenue requirement information during 2007, the final year of its ARP. In its filing, BHE requested a 9.76% increase in its delivery rates. After a significant amount of litigation, BHE and the OPA entered into a Stipulation which authorized BHE to increase its

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[9] This matter has been assigned Docket No. 2007-215, and all filings in the case can be found under this docket number on the Commission's virtual case file at http://mpuc.informe.org/easyfile/easyweb.php?func=easyweb_splashpage.

distribution rates by 2.04% on January 1, 2008. The Commission recently issued an Order Approving the Stipulation. *See Bangor Hydro-Electric Company, Proposed Rate Change (Adjustment of Electric Distribution and Stranded Cost Rates),* Docket No. 2006-661. BHE's filing did not contain a proposal for a new ARP after the current ARP's expiration on December 31, 2007, nor did any party make such a proposal as a part of the case. Therefore, BHE will once again be operating under a rate of return regulation paradigm commencing January 1, 2008.