

# MAINE STATE LEGISLATURE

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KURT ADAMS  
CHAIRMAN

STATE OF MAINE  
PUBLIC UTILITIES COMMISSION  
242 STATE STREET  
18 STATE HOUSE STATION  
AUGUSTA, MAINE  
04333-0018

STEPHEN L. DIAMOND  
SHARON M. REISHUS  
COMMISSIONERS

February 16, 2006

Honorable Philip L. Bartlett II, Senate Chair  
Honorable Lawrence Bliss, House Chair  
Joint Standing Committee on Utilities and Energy  
115 State House Station  
August, Maine 04333

Re: Report on Public Fire Protection Issues

Dear Senator Bartlett and Representative Bliss:

In 2005, your Committee considered LD 1051, Resolve, Establishing a Study Commission to Examine Water District Fees Assessed for Fire Suppression. Ultimately, you voted LD 1051 Ought-Not-To-Pass and sent a letter to the Commission requesting the Commission to (1) provide public education regarding the Commission's fire protection rule and (2) provide a status report to the Committee on the Commission's education activities.

Enclosed is the above-mentioned report and three attachments.

The Commission looks forward to working with the Committee on this subject when the Committee considers the content of this report.

Sincerely,

*Kurt Adams* *CD*

Public Utilities Commission  
Kurt Adams, Chairman  
Stephen L. Diamond, Commissioner  
Sharon M. Reishus, Commissioner

Attachments

cc: Utilities and Energy Committee  
Jon Clark, Legislative Analyst



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**Report by the Public Utilities Commission  
To the Utilities and Energy Committee  
Regarding Public Fire Protection Issues**

**I. BACKGROUND**

In 2005, the Utilities and Energy Committee (Committee) considered LD 1051, Resolve, Establishing a Study Commission to Examine Water District Fees Assessed for Fire Suppression. LD 1051 was a concept draft that would have established a study commission to examine (1) whether fees assessed for fire protection are equitable; (2) the ramifications of altering those fees and (3) whether fire protection fees assessed to municipalities should be limited in some way. After considering LD 1051, the Committee voted “ought not to pass” on the bill. However, by letter to the Public Utilities Commission (Commission) dated May 31, 2005, the Chairs of the Committee noted that: “Given the commission’s extensive work on private fire protection charges and the scrutiny that the public fire protection methodology has undergone over the years, the committee determined a new study of these matters was not warranted. However, we do believe there is a need for education so that the methodology and rationale behind public fire protection charges are more clearly understood.” The May 31, 2005 letter specifically requested the Commission to:

1. Develop written materials that explain the methodologies for the calculation and apportionment of public fire protection charges and the rationale for the methodologies;
2. In consultation with the Maine Municipal Association, the Maine Water Utilities Association and the Maine Rural Water Association, develop and offer to municipalities and water utilities educational seminars to explain the methodologies for the calculation and apportionment of public fire protection charges and the rationale for the methodologies; and
3. Report to the Committee by 15 February 2006 the results of the seminars, including any suggestions for alternative methodologies produced by seminar discussion or feedback indicating acceptance of current methodologies.

A copy of the May 31, 2005 letter is appended to this report as **Attachment 1**. The purpose of this report is to respond to the Committee’s May 31, 2005 letter.

**II. COMMISSION ACTIVITY**

After receipt of the May 31, 2005 letter, members of the Commission staff contacted representatives of the Maine Rural Water Association (MRWA), Maine Water Utilities Association (MWUA) and Maine Municipal Association (MMA) to discuss the requirements of the letter. Together, the group developed a curriculum and schedule for

a total of five seminars. After the details of the seminars were set, the Commission provided notice to prospective participants through a combination of fax, paper and electronic mailings.

**Table 1** sets forth the location, date and number of attendees for each of the five seminars.

**TABLE 1**

<b>Location</b>	<b>Seminar Date</b>	<b>Number of Attendees</b>
Freeport <sup>1</sup>	November 30, 2005	99
Caribou	December 9, 2005	15
Alfred	January 12, 2006	13
Newport	February 1, 2006	6
Ellsworth	February 2, 2006	5

Participants at each of the seminars included municipal officials and representatives of water utilities. Each of the seminars covered the following topics:

- History of fire protection in Maine
- Components of a water system
- Comparison of water utility size and cost
  - Those that provide fire protection
  - Those that only supply domestic water
- The Commission’s public fire protection rule (Chapter 69)
  - Standard Allocation Method (“The Curve”)
  - Full Allocation Method (Cost of Service Study)
- Discussion period

**Attachment 2** to this report includes the PowerPoint slides used during each seminar. **Attachment 3** is a copy of the Commission’s public fire protection rule.

**III. CONCLUSIONS**

At the conclusion of each seminar, the Commission asked participants to complete a seminar evaluation form. From the responses to the evaluation forms, the Commission has drawn the following three conclusions:

- When a water utility has infrequent, large rate increases, municipalities have a difficult time incorporating the full Fire Protection Charge (Charge) into its budget due to LD 1 and the “tax cap.” If water utilities would communicate better with the municipalities they serve about future rate increases and have smaller, more frequent rate increases,

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<sup>1</sup> The Freeport seminar was provided in conjunction with the MRWA’s annual conference.

the municipalities would have an easier time working the Charge into their budgets.

- Water utility personnel who attended the seminars are now better prepared to explain where the Charge comes from and how it is calculated.
- Municipal officials who attended the seminars are now better able to understand the reasoning behind the Charge.

In addition to the three conclusions summarized above, we offer the following observations for the Committee's consideration. Even though the Commission conducted the seminars and explained the calculation of the public fire protection charge and its history, some municipal representatives still expressed concerns with the Charge. One concern was whether "the Curve" is still accurate after the adoption of new federal Safe Drinking Water Act treatment requirements, which in some cases have dramatically increased the capital costs of water utilities.<sup>2</sup> There were also questions about whether water utilities and municipalities could develop an allocation method other than those described in Chapter 69. However, no specific methods were suggested.<sup>3</sup>

Based on the discussion during the seminars and comments in the seminar evaluation forms, the Commission believes that the seminars provided a helpful education tool. While the seminar participants have a better understanding of public fire protection, some are still not happy with the results produced by the rule. The Commission believes that additional training in this area may be helpful and is willing to work with MRWA, MWUA and MMA to provide this training to the water utilities and municipalities that are affected by the fire protection charge. As suggested by Table 1, future training sessions may reach a broader audience and be more beneficial if they are held in conjunction with other trainings or meetings that are sponsored by these associations. However, if any of these associations indicate that its members are interested in having a stand alone training session held in a certain geographical area, we would be willing to have staff work with the association to organize and present the desired training session.

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<sup>2</sup> The Commission has considered the viability of Chapter 69 in light of recent changes to the Safe Drinking Water Act and believes that the provisions of the rule, including the Curve, still represent a reasonable resolution of public fire protection issues.

<sup>3</sup> While no specific alternative methods were suggested during these training sessions, the Commission is always open to input regarding ways to improve Chapter 69 and the allocation methods contained in the rule.

PHILIP L. BARTLETT II, DISTRICT 6, CHAIR  
 SCOTT W. COWGER, DISTRICT 21  
 CAROL WESTON, DISTRICT 23



STATE OF MAINE

ONE HUNDRED AND TWENTY-SECOND LEGISLATURE

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May 31, 2005

Sharon M. Reishus, Acting Chair  
 Maine Public Utilities Commission  
 State House Station 18  
 Augusta, ME 04333-0018

Dear Commissioner Reishus:

As you know, our committee has voted "ought not to pass" on LD 1051, Resolve, Establishing a Study Commission To Examine Water District Fees Assessed for Fire Suppression. The committee understands the commission has two rules governing fire suppression charges: one governing public fire suppression charges and one governing private fire suppression charges. The committee also understands that private fire protection charges were the subject of considerable commission study in the 1990s. Public fire protection charges, which engendered the concerns that gave rise to LD 1051, raise similar issues of cost allocation; we understand the commission's current rule, Chapter 69, provides two options for determining the allocation: one is "the curve", which provides an estimated allocation based on the capacity burden the public fire suppression demand represents; the other is a full-allocation, cost-of-service calculation.

Given the commission's extensive work on private fire protection charges and the scrutiny that the public fire protection methodology has undergone over the years, the committee determined a new study of these matters was not warranted. However, we do believe there is a need for education so that the methodology and rationale behind public fire protection charges are more clearly understood.

Consequently, we would request that the commission:

1. Develop written materials that explain the methodologies for the calculation and apportionment of public fire protection charges and the rationale for the methodologies;
2. In consultation with the Maine Municipal Association, the Maine Water Utilities Association, and the Maine Rural Water Association, develop and offer to municipalities and

Attachment 1

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 2005/1/28

- water utilities educational seminars to explain the methodologies for the calculation and apportionment of public fire protection charges and the rationale for the methodologies; and
3. Report to the committee by 15 February 2006 the results of the seminars, including any suggestions for alternative methodologies produced by seminar discussions or feedback indicating acceptance of current methodologies.

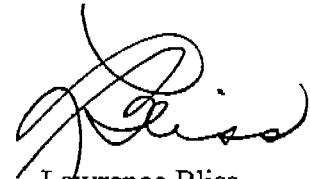
If this process generates recommendations for changes to law, we would request that any draft legislation be submitted to us as early as possible, preferably before cloture for the 2<sup>nd</sup> Regular Session.

Thank you for your attention to this matter. We look forward to reviewing the commission's report next year.

Sincerely,



Philip L. Bartlett II  
Senate Chair



Lawrence Bliss  
House Chair

cc: Senator Jonathan Courtney, Sponsor, LD 1051  
Members, Joint Standing Committee on Utilities and Energy  
Geoff Herman, Maine Municipal Association  
Steve Levy, Maine Rural Water Association  
Jeff McNelly, Maine Water Utilities Association

# Public Fire Protection

Stephani Morancie

Lucretia Smith

Maine Public Utilities Commission



# Why Public Fire Protection

- Many water utilities in Maine were originally developed to provide fire protection
  - Drinking water was a secondary consideration.
- A water source, storage tank, water mains and hydrants provided higher volume fire flow than fire trucks and (in some old cases) bucket brigades.

# Not Hydrant Rentals!

- One of the most common misperceptions about fire protection charges is that they are essentially “hydrant rentals.”
- When this term is used, it does not acknowledge the other important infrastructure that makes up a water utility.
- Without this infrastructure, the water could never get to the hydrant.

# Not Hydrant Rentals!

- Common water utility infrastructure:
  - Water source (well, pond, river)
  - Water treatment (filtration, chlorination, etc)
  - Pumps
  - Water mains
  - Storage tanks (provide pressure and large amounts of water)
  - Hydrants.

# Not Hydrant Rentals!

- When a water utility is chartered to provide fire protection, the utility is often 2-3 times larger than if it provided drinking water alone.
- Why use treated water for fire protection?
  - Would need to design, build, operate & maintain 2 separate systems
  - Cost prohibitive
  - What happens to the fire system when not in use?

# Fire Protection Charges

- Why should the municipalities pay for fire protection charges?
  - Most of the important municipal services are in town centers, as are most water utilities.
  - If a school, town office, or other municipal building should burn, the entire town could pay higher taxes for rebuilding.
  - Fire protection provided by local water utilities helps safeguard the buildings that all taxpayers use.
  - Sometimes a decrease in insurance rates when fire protection available.

# Chapter 69

- Determines the percentage of gross revenues that a water utility can derive from fire protection charges.
- Water utilities have 2 options for determining this percentage:
  - “The Curve” – Standard Allocation Method
    - Allows between 6% and 30%
    - Developed because Full Allocation Studies cost prohibitive
  - Full Allocation Studies
    - Often called Cost of Service Studies.
- Some utilities have been granted higher % with Commission approval and municipality has agreed to higher %.

# “The Curve”

- Allocation of fire protection charges has been formally studied for about 120 years.
  - AWWA Proceedings, 1888, Fuller
  - AWWA Journal, December, 1937, Nixon
  - NEWWA Journal, March, 1955, Root & Camp
  - MWUA Journal, March, 1961, Committee
  - MPUC Rules, December, 1987, Chapter 69

# “The Curve” – A History

- A small water utility will tend to have higher fire protection costs
  - If have a population of 1000, average demand would be ~ 40 gpm with a peak ~100 gpm
  - Fire demand could be 1000 gpm or more
  - Must size system to meet the fire demand.
- Large water utilities tend to have smaller fire protection costs
  - Larger population, average demand would be higher, but not necessarily higher fire demand.



# “The Curve” – A History

- Some studies have suggested that the fire protection cost should be the difference between the cost of the system with fire protection and the cost without.
- Maine Water Utilities Association did a study in March 1961
  - Looked at the previous studies
  - Determined the Curve based on allocation studies of 7 utilities, varying by size by 500 to 140,000.

# The Curve

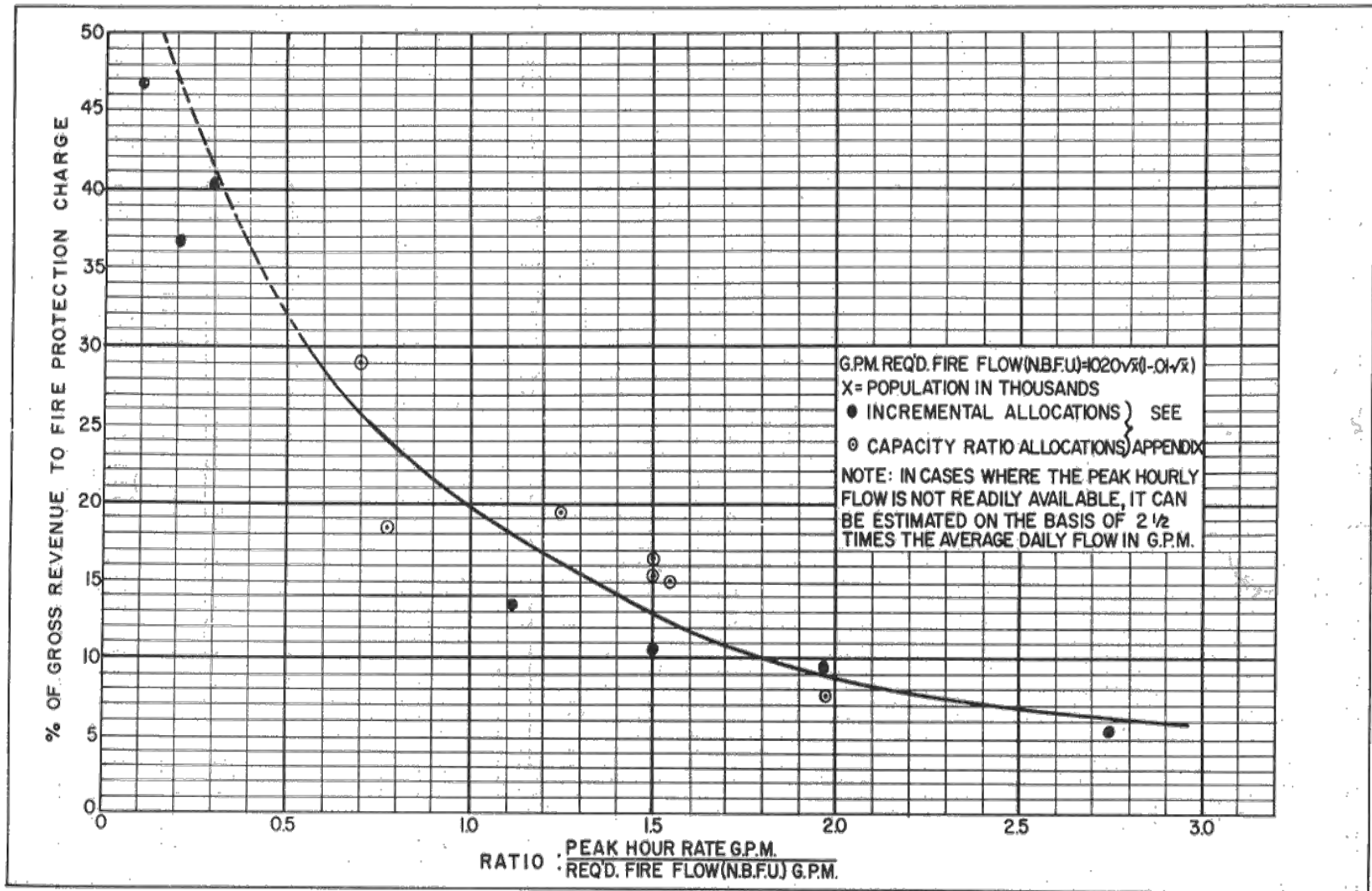


FIG. 1 DETERMINATION OF PERCENTAGE OF GROSS REVENUE FOR PUBLIC FIRE PROTECTION CHARGE

# Chapter 69 – Curve calculations

- Peak Flow Rate
- Population Served/1000 =  $x$
- Required Fire Flow (RFF) Formula:  
$$1020\sqrt{x}(1-.01\sqrt{x}) = \text{RFF}$$
- Peak Flow/RFF Ratio
- Determine % on Curve

# Chapter 69 – Curve Calculation Example

- Peak Flow Rate = 7,640 GPM
- Population Served/1000 = 26,800/1000 = 26.8
- Required Fire Flow (RFF) Formula:

$$1020\sqrt{x}(1-.01\sqrt{x}) = \text{RFF}$$

$$1020\sqrt{26.8} (1-.01\sqrt{26.8}) = 5006 \text{ GPM}$$

- Peak Flow/RFF Ratio

$$7640 / 5006 = 1.53$$

- Determine % on Curve

$$10\%$$

# The Curve

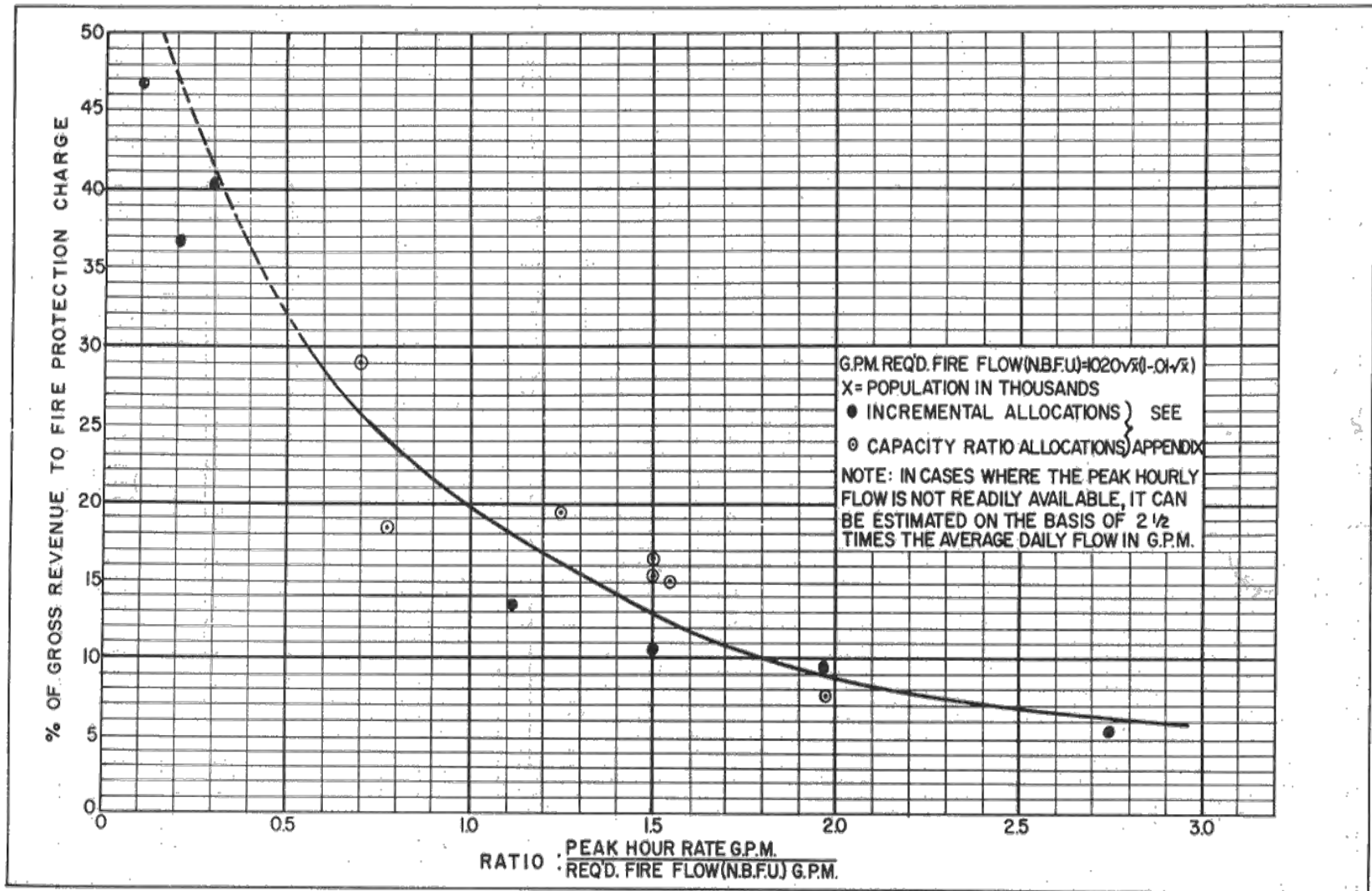


FIG. 1 DETERMINATION OF PERCENTAGE OF GROSS REVENUE FOR PUBLIC FIRE PROTECTION CHARGE

# Chapter 69 – Cost of Service

- If it so wishes, a utility can prepare a full allocation study and present to the MPUC for consideration.
  - This method is often used when there is special treatment or large industrial users on the system that should be taken into account.
  - Many times this method determines that the percentage charged should be higher than 30%.
  - May be costly to utility because outside consultants often needed.

# Chapter 69 – Cost of Service

- Commission can order a full allocation study.
- Also makes provisions for new hydrants added to the system between rate cases
  - This is not for the replacement of existing hydrants
- Also allows utility to allocate to multiple municipalities when serves those municipalities.

# Questions?

- All MPUC Rules can be found on our website at:

<http://www.maine.gov/mpuc/>

- Any questions concerning water utilities can be directed to

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stephani.morancie@maine.gov

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lucretia.smith@maine.gov



65-407 PUBLIC UTILITIES COMMISSION

Chapter 69: DETERMINATION OF FIRE PROTECTION REVENUES FOR WATER UTILITIES

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SUMMARY: This rule establishes a formula for determining for ratemaking purposes the percentage of gross revenues that water utilities should derive from fire protection charges.

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1. Definitions.

- A. "Fire Protection Allocation Curve" means the curve established from studies done by the Maine Water Utilities Association, as described in its Journal of March 1961, and attached to this Rule.
- B. "Peak Flow" means the peak hourly flow in gallons per minute for the utility's system. In cases where the peak hourly flow cannot be readily determined, it shall be estimated on the basis of 2 1/2 times the average daily flow in gallons per minute.
- C. "Required Fire Flow" shall be determined by the National Board of Fire Underwriters (N.B.F.U.) formula  $1020 \sqrt{x} (1 - .01 \sqrt{x})$  in gallons per minute, where X is the population in thousands served by the utility.
- D. "Standard Allocation Method" is the method of determining the percentage of a utility's gross revenue to be derived from public fire protection charges as determined by Section 2 of this Rule.

2. Determination of Percentage of Gross Revenue for Fire Protection Charge.

To determine the percentage of gross revenue that a water utility shall allocate to public fire protection charges, it shall first determine the fraction in which Peak Flow is the numerator and Required Fire Flow is the denominator. This fraction shall then be plotted on the Fire Protection Allocation Curve, attached as Appendix A. The applicable percentage is read at the point where the fraction determined above, as plotted on the horizontal axis of the Fire Protection Allocation Curve, intersects the vertical axis of the curve.

The allocation shall be as determined by the curve, except as follows:

- A. In no event shall the percentage at gross revenue allocated to fire protection charges be more than 30%, or less than 6%, of gross revenue, unless either (1) the utility proves to the Commission, by such studies as the Commission may require, that such extraordinary percentages are reasonable and necessary; or (2) that an allocation factor of more than 30% has been accepted by the municipality and approved by the Commission and conditions have not materially changed.
  - B. The Commission finds, on the basis of evidence presented to it, which may include the allocation factor approved by the Commission in the utility's last rate case, that a different allocation factor should be used because of an inadequate fire flow or other good cause.
3. Full Allocation Studies.
- A. As an alternative to using the Standard Allocation Method, a utility may prepare and present to the Commission for its consideration a full allocation study of its own system. Utilities are encouraged to prepare and present such studies when there are conditions on their system, such as extensive treatment facilities, that would make the application of the Standard Allocation Method unreasonable or inappropriate.
  - B. The Commission may order a utility to prepare and present to it for its consideration a full allocation study of the utility's system when it determines that application of the Standard Allocation Method would be unreasonable or inappropriate.
4. Charges for Public Fire Protection for New Extension.

Until the date of completion of its next general rate case proceeding, a utility, other than a utility that has chosen to make no new investments in new extensions pursuant to 35-A M.R.S.A. § 6106, following the effective date of its decision not to invest pursuant to that section, may bill to the municipality, or the public authority, the charge for public fire protection on a new main extension constructed in a municipally accepted public way after the effective date of the rule to which extension the first customer was connected after February 1, 1987, pursuant to the following formula:

TACR x FP

Where

TACR = Total average annual customer revenue for all customers connected directly to the extension, including public fire protection, as defined in Chapter 65, §1(F).

FP = Percentage of utility's revenue requirement for fire protection determined pursuant to Section 2, above, or as otherwise ordered by the Commission.

Hydrants on a public way shall be installed at the spacing or locations agreed upon by the utility and the municipality when the extension is constructed, but the charges shall apply whether or not any hydrants are located on the main extension.

Until such time as the way on which a hydrant is located is accepted by a municipality or the municipality accepts responsibility for a hydrant as a public hydrant, the hydrant shall be considered private fire protection and shall be billed accordingly.

Any tariff provision that conflicts with this rule shall be null and void.

5. Charges for new public hydrants on mains to which the first customer was connected on or before February 1, 1987.

Until the date of completion of its next general rate proceeding, a utility may bill to the municipality, or other public authority, the charge for public fire protection for new hydrants installed on mains to which the first customer was connected on or before February 1, 1987, pursuant to the following formula:

The formula for determining the annual charge (AC) for a non-investor owned utility is:

$$AC = CH \times [C + P + .02]$$

The formula for determining the annual charge (AC) for an investor-owned utility is:

$$AC = CH \times \left[ CD + \frac{CE}{1 - (FIT - (FIT \times SIT)) + SIT} + .02 \right]$$

Where:

AC = Annual charge for a new hydrant on a main to which the first customer was connected on or before February 1, 1987.

- C = Overall cost of capital for non-investor owner utilities, expressed as a decimal. Unless otherwise approved or set by the Director of Finance or the Commission, the cost of capital shall be the average interest rate for the first 15 years of the most recent issues of the Maine Bond Bank for a serial bond, assuming equal annual principal payments.
- CH = cost of the hydrant.
- CD = Cost of debt for an investor-owned utility, weighted by the debt ratio, expressed as a decimal. Unless otherwise approved or set by the Director of Finance or the Commission, the cost of debt and the debt ratio shall be those approved in the utility's most recent rate case.
- CE = Cost of equity, weighted by the equity ratio, expressed as a decimal. Unless otherwise approved or set by the Director of Finance of the commission, the cost of equity and the equity ratio shall be those approved in the utility's most recent rate case.
- FIT = The utility's marginal federal income tax rate allowed in its most recent rate case, expressed as decimal, unless a different tax rate is approved or set by the Director of Finance or the Commission.
- P = Principal payment percentage annually, expressed as a decimal. Unless a different amount is approved or set by the Director of Finance or the Commission, the amount shall be .067 (15 years).
- SIT = The utility's marginal state income tax rate allowed in its most recent rate case, expressed as a decimal, unless a different tax rate is approved or set by the Director of Finance or the Commission.

Until such time as the way on which a hydrant is located is accepted by a municipality or the municipality accepts responsibility for the hydrant as a public hydrant, the hydrant shall be considered private fire protection and shall be billed accordingly.

Any tariff provision that conflicts with this rule shall be null and void.

6. Application.

- A. This rule will govern the rate design of all rate filings made by water utilities after the effective date of the rule, whether filed pursuant to 35-A M.R.S.A. §§307 and 309 or §§307 and 6104. Utilities will not be required by reason of this rule to file for a change of rates existing on the effective date of this rule, unless required by Commission order under 35-A M.R.S.A. §1306 after a §1303 investigation.

- B. Rates filed pursuant to 35-A M.R.S.A. §§307 and 6104 after the effective date of the rule that do not conform with the provisions of the rule shall be considered unreasonable and not take effect, unless substantiated by an acceptable allocation study for the utility's system. The Technical Analysis Division of the Commission will review all §6104 rate filings to determine compliance with this rule and shall notify the utility if there is non-compliance with the rule. After receipt of this notice, the utility shall not charge its new rates until new rates have been filed pursuant to §§307 and 6104 that are in compliance with this rule, or the Commission, after a hearing requested by the utility, finds that they are in compliance with this rule.
- C. In cases where a utility serves more than one municipality, it may allocate to each municipality served a percentage of the total public fire protection revenues that it is entitled to collect on the basis of that municipality's percentage of the total number of hydrants served by the utility.
7. The Commission, for good cause shown may waive the application of any provisions of this rule.
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STATUTORY AUTHORITY: 35-A M.R.S.A. §§111, 301, 502, 104 and 1301.

EFFECTIVE DATE:

August 10, 1987

AMENDED:

This rule was approved by the Secretary of State on December 14, 1987 and will be effective on December 19, 1987.

EFFECTIVE DATE (ELECTRONIC CONVERSION):

May 4, 1996

NON-SUBSTANTIVE CHANGES:

March 26, 1999 - converted to MS Word.

November 9, 1999 - removal of duplicate words in Summary.