Conservation-Oriented Residential Water Rate Design and Household Occupancy

An Investigative Review of New York's Regulatory Framework

Executive Summary

Water conservation has become an established objective of modern water utility regulation. In New York, the Public Service Commission has approved conservation-oriented residential rate structures, while utilities employ customer education, rebate programs, water-efficiency initiatives, and public outreach that encourages the responsible use of water resources. Among these measures, inclining block (tiered) residential water rates have become an important regulatory tool for encouraging efficient water use through progressively higher prices as residential consumption increases.[1]

At the same time, residential households differ in ways that may influence ordinary water demand. Residential households vary considerably in occupancy. Some consist of a single resident, while others include multiple adults, children, or several generations sharing one home.

Because more residents naturally require more water for everyday activities such as drinking, cooking, bathing, sanitation, and laundry, an important regulatory question arises: Can conservation-oriented residential water rate design, an optional adjustment to the initial residential water allocation based on verified household occupancy, administrative feasibility, and customer privacy operate together within New York's existing regulatory framework?

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[1] New York State Public Service Commission, Order Adopting Joint Proposal as Modified and Establishing Rate Plan, Case 23-W-0111 (issued May 16, 2024); Joint Proposal, § XVIII, “Conservation & Efficiency Program,” Case 23-W-0111 (dated January 4, 2024); New York State Department of Environmental Conservation, “Water Use & Conservation”; U.S. Environmental Protection Agency, WaterSense, “Statistics and Facts.”

This report examines that question through a review of official New York Public Service Commission proceedings, Department of Public Service materials, utility filings, government publications, industry guidance, and documented conservation programs administered by comparable water utilities. Throughout the report, New York regulatory sources receive primary emphasis, while comparative utility examples are used solely to illustrate documented administrative practices rather than legal precedent or recommended policy for automatic adoption.

The research demonstrates that water conservation remains an important public policy objective and that conservation-oriented residential rate structures continue to serve an important role in encouraging efficient water use. The evidence also demonstrates that conservation policy distinguishes between essential household water use and discretionary demand, recognizing that ordinary indoor household needs differ from water uses that present greater opportunities for voluntary conservation. Research reviewed throughout this report further establishes that household occupancy is a significant determinant of ordinary residential water demand and that New York's own regulatory framework recognizes the importance of evaluating conservation-oriented rate structures using actual customer data.

The report also examines documented utility programs demonstrating that an optional adjustment to the initial residential water allocation based on verified household occupancy can be incorporated into conservation-oriented residential rate structures while preserving conservation objectives. Comparable utilities reviewed in this report administer occupancy-based adjustments through voluntary applications, staff review, online submission, documentation where required, privacy policies or document-handling rules, and renewal or reconfirmation in some programs. These examples demonstrate that conservation-oriented pricing, occupancy-based adjustments, verification or review procedures, administrative feasibility, and customer privacy can operate together within documented utility practice.

Based upon the evidence examined, this report does not recommend abandoning conservation-oriented residential rate structures or replacing existing pricing mechanisms. Nor does it recommend adoption of any specific occupancy formula, gallon allocation, or verification standard. Instead, the research supports a narrower conclusion. The available evidence demonstrates that a voluntary adjustment to the initial residential water allocation based on verified household occupancy is compatible with documented conservation practices and warrants evaluation through the New York Public Service Commission's established regulatory processes.

Accordingly, this report recommends that the New York State Public Service Commission evaluate the implementation of an optional adjustment to the initial residential water allocation based on verified household occupancy within future conservation-oriented residential rate proceedings involving New York's investor-owned water utilities. Any such evaluation should occur through the Commission's existing regulatory framework with participation by utilities, Department of Public Service Staff, consumer advocates, municipalities, and other interested parties. In keeping with the evidence-based approach reflected throughout this report, the purpose of that evaluation would be to determine—based upon documented research, customer data, and established administrative practices—whether implementation would further the public interest while preserving the conservation objectives that remain central to New York's water policy.

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References

List of Abbreviations

The following abbreviations are used throughout this report.

Abbreviation	Meaning
AWWA	American Water Works Association
CCF	Hundred Cubic Feet (water billing unit)
DEC	New York State Department of Environmental Conservation
DPS	New York State Department of Public Service
EPA	United States Environmental Protection Agency
IRWD	Irvine Ranch Water District
LVMWD	Las Virgenes Municipal Water District
PSC	New York State Public Service Commission
VEO	Veolia Water New York
LIB	Liberty Utilities (New York Water) Corp.

Sources and Citation Note

This report is based primarily upon official regulatory, governmental, and utility sources. The research relies on New York Public Service Commission proceedings, Commission Orders, Joint Proposals, Department of Public Service materials, New York State Department of Environmental Conservation publications, United States Environmental Protection Agency guidance, utility policies and tariffs, and other official documents relevant to residential water conservation and rate design.

Comparative utility examples are included to illustrate documented conservation programs, administrative practices, and implementation approaches. These examples are presented for comparative research purposes only and should not be interpreted as legal precedent or as recommendations for automatic implementation within New York's regulatory framework.

Throughout the report, New York sources are given primary emphasis whenever available. Comparative sources are used to provide additional context or to illustrate documented implementation practices after the relevant New York regulatory framework has been established.

Direct quotations are used sparingly and only where the original language provides particular authority, precision, or regulatory significance. Unless otherwise indicated, factual statements are presented through accurate paraphrase supported by citations to the underlying source material.

The report distinguishes between Public Service Commission Orders, Department of Public Service Staff positions, Joint Proposals, utility filings, government publications, and comparative authorities. References to these materials are intended to accurately reflect the role each source plays within the regulatory process.

Introduction

Background

Water is one of society's most essential public resources. Reliable drinking water supports public health, sanitation, fire protection, economic activity, environmental stewardship, and the daily needs of every household. As communities have grown and demands on water systems have increased, governments and water utilities have placed greater emphasis on conserving available water resources while maintaining safe and reliable public service.[2]

Over the past several decades, water conservation has evolved from an occasional response to drought into a fundamental objective of modern water utility management. Conservation programs now include public education, leak detection, infrastructure improvements, water-efficient technologies, customer outreach, and conservation-oriented residential rate design. Together, these measures seek to encourage efficient water use while protecting both water supplies and the infrastructure required to deliver them.[3]

Among these conservation tools, residential water rate design has become an increasingly important component of utility regulation. Many water utilities now employ conservation-oriented rate structures that apply progressively higher prices as residential water use increases. These pricing structures are intended to encourage efficient water use while preserving access to water required for ordinary household needs.[4]

At the same time, residential households differ in important ways. Some households are occupied by a single resident, while others include couples, children, grandparents, multiple generations living together, or unrelated adults sharing one residence. As more residents share one household, ordinary household water needs naturally increase because more residents rely upon the same residential water service for drinking, cooking, bathing, sanitation, laundry, and other everyday activities.[5]

These realities give rise to an important regulatory question. If conservation-oriented residential rate structures seek to encourage efficient water use while preserving ordinary household consumption, how should those conservation objectives operate when documented household water demand differs because of the number of residents sharing a single water meter?

This report examines that question within the context of New York's existing regulatory framework.

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[2] New York State Department of Environmental Conservation, “Water Use & Conservation”; U.S. Environmental Protection Agency, WaterSense, “How We Use Water.”

[3] New York State Department of Environmental Conservation, A Survey of Methods for Implementing and Documenting Water Conservation in New York (Water Conservation Manual); American Water Works Association, Water Conservation Programs—A Planning Manual (Manual M52), 2nd ed. (2017).

[4] New York State Public Service Commission, Order Adopting Joint Proposal as Modified and Establishing Rate Plan, Case 23-W-0111 (issued May 16, 2024); American Water Works Association, Water Conservation Programs—A Planning Manual (Manual M52), 2nd ed. (2017).

[5] U.S. Environmental Protection Agency, WaterSense, “Understanding Your Water Bill”; William B. DeOreo et al., Residential End Uses of Water, Version 2: Executive Report, Water Research Foundation, Project 4309, Report 4309A (2016); Liberty Utilities (New York Water) Corp., Threshold Analysis Study 2024, Case 23-W-0235 (filed December 27, 2024).

Purpose of the Report

The purpose of this report is to examine whether conservation-oriented residential water rate design can operate together with an optional adjustment to the initial residential water allocation based on verified household occupancy, administrative feasibility, and customer privacy within the regulatory framework governing New York's investor-owned water utilities.

The report does not argue against water conservation. On the contrary, it begins from the premise that conservation remains an important public policy objective supported by state regulators, government agencies, and water utilities. Nor does the report advocate replacing conservation-oriented residential rate structures with uniform pricing or eliminating higher conservation tiers.

Instead, the report investigates how conservation-oriented residential rate design functions in practice, how household occupancy influences ordinary residential water demand, how comparable utilities have addressed similar issues, and how existing administrative practices support implementation while protecting customer privacy and maintaining program integrity.

Research Question

The central research question examined throughout this report is:

Can conservation-oriented residential water rate design, an optional adjustment to the initial residential water allocation based on verified household occupancy, administrative feasibility, and customer privacy operate together within New York's existing regulatory framework?

In this report, “initial residential water allocation” refers to the amount of residential water use available at the initial rate before higher-priced conservation tiers apply. The shortened term “initial allocation” is used thereafter.

Rather than beginning with a predetermined policy outcome, the report approaches this question through documented evidence gathered from New York regulatory proceedings, government publications, utility policies, industry guidance, and comparable utility implementation.

Scope

This report focuses primarily on the regulation of investor-owned water utilities operating under the jurisdiction of the New York Public Service Commission.

The research examines:

- New York Public Service Commission proceedings;
- Liberty Utilities (New York Water) Corp.;
- Veolia Water New York;
- Department of Public Service materials;
- New York State Department of Environmental Conservation publications;
- United States Environmental Protection Agency guidance;
- American Water Works Association publications;
- comparable utility programs in other jurisdictions; and

- documented administrative practices relating to verification, privacy, and program implementation.

The report does not attempt to recommend a specific occupancy formula, gallon allocation, tariff language, or verification standard. Those implementation details remain matters for utility-specific analysis and consideration through the Public Service Commission's established regulatory process.

Methodology

This report is based primarily upon a review of official regulatory and governmental sources together with documented utility policies and industry guidance.

Research materials include Public Service Commission Orders, Joint Proposals, Department of Public Service documents, government publications, utility conservation policies, administrative procedures, and comparable utility programs. Comparative examples are used to illustrate documented implementation practices and administrative approaches rather than to establish legal precedent for New York.

Throughout the report, New York sources are given primary emphasis. Comparative utilities are examined only after the relevant New York regulatory framework has been established. Direct quotations are used where the original language provides particular authority or precision; otherwise, findings are presented through accurate paraphrase supported by citations to the underlying source material.[6]

Organization of the Report

The report is organized as a sequential investigation.

Chapter 1 establishes water conservation as an important public policy objective.

Chapter 2 examines the purpose and development of conservation-oriented residential rate design.

Chapter 3 explores the distinction between essential household water use and discretionary demand within modern conservation policy.

Chapter 4 examines how these conservation principles have been incorporated into the regulation of New York's investor-owned water utilities.

Chapter 5 reviews the documented relationship between household occupancy and ordinary residential water demand.

Chapter 6 examines comparable utility implementation in other jurisdictions.

Chapter 7 evaluates administrative feasibility, including verification procedures, customer privacy, documentation, and program administration.

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[6] Research sources examined throughout this report include New York State Public Service Commission proceedings, Department of Public Service materials, New York State Department of Environmental Conservation publications, U.S. Environmental Protection Agency guidance, American Water Works Association publications, Water Research Foundation research, and documented utility materials identified in the References.

Chapter 8 integrates the evidence within New York's existing regulatory framework.

Chapter 9 presents the formal findings supported by the research.

Finally, Chapter 10 presents a recommendation for Commission consideration based upon those findings.

Chapter 1

Water Conservation as Public Policy

Reliable public water systems are fundamental to public health, economic activity, fire protection, environmental quality, and the everyday needs of millions of New Yorkers. Supplying safe drinking water requires substantial investments in water sources, treatment facilities, storage systems, and distribution infrastructure. Because these systems are both essential and costly to maintain, state regulators and water utilities have long recognized that responsible water management depends not only on maintaining reliable systems but also on encouraging the efficient use of available water resources.

Accordingly, water conservation has become an established objective of public policy. Conservation helps protect existing water supplies, reduces stress on treatment and distribution infrastructure, delays or avoids the need for costly system expansions, and supports long-term environmental sustainability. Rather than viewing conservation solely as a response to drought or emergency conditions, modern water policy increasingly treats efficient water use as a permanent component of utility planning and rate design.[7]

New York has formally incorporated these principles into its water resource policies. The New York State Department of Environmental Conservation identifies water conservation as an important tool for protecting water resources while supporting reliable public water supplies. The Department encourages practices that improve water-use efficiency and reduce unnecessary demand as part of comprehensive water resource management. These objectives reflect a broader state policy that conservation benefits both the environment and utility customers by helping preserve existing resources and reducing long-term infrastructure costs.

The New York State Public Service Commission has likewise incorporated conservation into the regulation of investor-owned water utilities. Through rate proceedings, conservation programs, and approved utility initiatives, the Commission has repeatedly recognized that efficient water use serves the public interest. Recent Public Service Commission rate proceedings involving Liberty Utilities and Veolia Water New York demonstrate that conservation remains an important component of utility operations.

For example, the Joint Proposal adopted in Liberty Utilities' 2023 rate case required Liberty to conduct a detailed Threshold Analysis examining whether residential customers whose water use consisted primarily of indoor consumption were reaching the highest residential conservation rate block (Tier 4). The study itself was required as part of the Commission-approved settlement and reflects the continuing regulatory focus on evaluating how conservation-oriented rate structures operate in practice. If indoor-only water use was found to reach Tier 4, the Joint Proposal further contemplated additional study, conducted in consultation with Department of Public Service Staff, to evaluate whether modifications or other measures should be considered.[8]

Similarly, the conservation commitments adopted in the Veolia Water New York proceeding extended beyond rate design alone. The Joint Proposal provided that the company would continue conservation education, customer outreach, rebates, and other water-efficiency initiatives intended to reduce both indoor and outdoor water use. These measures illustrate that conservation policy encompasses a broad

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[7] New York State Department of Environmental Conservation, “Water Use & Conservation” and “Water Conservation Requirements”; U.S. Environmental Protection Agency, WaterSense, “Statistics and Facts.”

[8] New York State Public Service Commission, Order Adopting Terms of Joint Proposal and Establishing Rate Plan, Case 23-W-0235 (issued August 15, 2024); Joint Proposal and Appendices, Case 23-W-0235 (filed May 31, 2024).

range of programs designed to encourage efficient consumption while maintaining reliable service. The Commission itself described the approved residential rate design as follows: "The rate structure established in the Joint Proposal is conservation-oriented, with inclining rates designed to discourage discretionary usage, particularly in the summer."[9]

These New York proceedings reflect a broader understanding that conservation is achieved through multiple complementary approaches. Public education encourages customers to use water efficiently. Rebate programs promote the adoption of water-saving fixtures and appliances. Leak detection and infrastructure improvements reduce system losses. Customer outreach increases awareness of efficient practices. Together, these initiatives seek to reduce unnecessary consumption while maintaining adequate water service for essential household needs.

Federal guidance reinforces these same objectives. The U.S. Environmental Protection Agency identifies water efficiency as an important strategy for protecting water resources, improving system reliability, and reducing long-term costs for both utilities and consumers. Although regulatory authority over New York water rates rests primarily with the Public Service Commission, EPA guidance demonstrates that New York's conservation policies are consistent with nationally recognized principles of water resource management.[10]

Importantly, the goal of conservation does not imply that every gallon of water carries the same value or serves the same purpose. Daily household activities such as drinking, cooking, bathing, sanitation, and laundry represent essential uses of water that support public health and basic living standards. Other uses, particularly discretionary outdoor consumption, may present greater opportunities for conservation without affecting fundamental household needs. Recognizing these differences has become an important consideration in the design of modern water conservation programs.

As utilities have pursued conservation objectives, regulators have increasingly examined not only whether conservation should be encouraged, but also how pricing mechanisms can influence customer behavior while maintaining equitable access to essential water service. This has led many water systems to adopt rate structures specifically intended to encourage efficient water use through economic incentives rather than mandatory restrictions.

Understanding why utilities increasingly rely upon residential rate design as one component of broader conservation policy provides the foundation for the next chapter. Chapter 2 examines the evolution and purpose of tiered residential water rates, explaining why many water utilities have adopted inclining block rate structures as one of their principal conservation strategies.

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[9] New York State Public Service Commission, Order Adopting Joint Proposal as Modified and Establishing Rate Plan, Case 23-W-0111 (issued May 16, 2024); Joint Proposal, § XVIII, “Conservation & Efficiency Program,” Case 23-W-0111 (dated January 4, 2024).

[10] U.S. Environmental Protection Agency, WaterSense, “Statistics and Facts,” “How We Use Water,” and “Start Saving.”

Chapter 2

Why Water Utilities Use Tiered Residential Water Rates

Having established that water conservation is an important public policy objective, the next question is how utilities encourage efficient water use while continuing to provide reliable service. Public education, conservation outreach, rebate programs, leak detection, and infrastructure improvements all contribute to reducing unnecessary water consumption. Another widely used conservation tool is the design of residential water rates themselves.

Water rates are more than a method of recovering the cost of providing service. The structure of those rates can influence customer behavior by creating financial incentives that encourage efficient water use while preserving access to essential household consumption. For this reason, many regulated water utilities have adopted inclining block, or tiered, residential rate structures.

Under an inclining block rate structure, residential water consumption is divided into successive usage blocks, commonly referred to as tiers. Water used within the first tier is billed at the utility's standard base consumption rate. As consumption exceeds that initial allocation, additional water is billed at progressively higher rates. These higher-priced tiers are intended to encourage conservation by increasing the cost of higher levels of water use.

Rather than reducing the price of essential water use, inclining block rates increase the price of additional consumption beyond the initial allocation. In this way, the rate structure uses progressively higher prices to encourage customers to reduce discretionary water use while preserving the standard Tier 1 price for ordinary household consumption.

New York has incorporated these principles into the regulation of investor-owned water utilities. Recent Public Service Commission proceedings involving both Liberty Utilities and Veolia Water New York demonstrate that residential conservation rate structures continue to play an important role in utility rate design. In approving the Veolia Water New York Joint Proposal, the Commission explained that "the rate structure established in the Joint Proposal is conservation-oriented, with inclining rates designed to discourage discretionary usage, particularly in the summer."[11] This language confirms that the purpose of the approved inclining block rate structure is not simply revenue collection, but the encouragement of efficient water use through conservation-oriented pricing.

The Liberty Utilities Threshold Analysis illustrates how seriously the Commission treats the operation of these conservation rates. Rather than simply approving the existing rate structure without further review, the Commission-approved Joint Proposal required Liberty to examine whether residential customers whose consumption consisted primarily of indoor water use were reaching Tier 4 during non-peak months. If such customers were identified, Liberty and Department of Public Service Staff were directed to evaluate whether additional study or modifications should be considered. This requirement demonstrates that conservation-oriented rate design is expected to achieve its objectives while remaining subject to ongoing review and evaluation.[12]

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[11] New York State Public Service Commission, Order Adopting Joint Proposal as Modified and Establishing Rate Plan, Case 23-W-0111 (issued May 16, 2024).

[12] New York State Public Service Commission, Order Adopting Terms of Joint Proposal and Establishing Rate Plan, Case 23-W-0235 (issued August 15, 2024); Liberty Utilities (New York Water) Corp., Threshold Analysis Study 2024, Case 23-W-0235 (filed December 27, 2024).

The economic rationale underlying tiered rates is well established. Water demand is not perfectly fixed. While certain household uses are essential, other uses are more responsive to price. By increasing the cost of higher levels of consumption, utilities create an economic incentive for customers to reduce discretionary water use. This approach seeks to balance efficient resource management with reliable water service by encouraging conservation where customers have the greatest practical ability to reduce consumption voluntarily.

Industry guidance reflects these same principles. Water resource planning publications describe inclining block rates as a means of providing conservation price signals while preserving the standard rate for an initial level of residential consumption. Water pricing is therefore intended not merely to recover utility costs, but also to encourage the efficient use of a limited public resource. These concepts have become common elements of modern water utility rate design and are reflected in conservation planning throughout the United States.[13]

Importantly, the existence of conservation-oriented rate structures does not, by itself, answer every question regarding how those structures should operate. Conservation pricing establishes an important public policy objective, but it also raises practical questions concerning how different patterns of residential water use interact with the rate design. As utilities have gained experience with tiered rates, regulators have increasingly examined whether the intended conservation incentives operate consistently across different customer circumstances.

Understanding that question requires examining one distinction that has become increasingly important in both research and utility practice: the difference between essential and discretionary residential water use. That distinction forms the focus of the next chapter.

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[13] American Water Works Association, Water Conservation Programs—A Planning Manual (Manual M52), 2nd ed. (2017).

Chapter 3

Essential Household Water Use Within Conservation Policy

Having established that water conservation is a fundamental public policy objective and that tiered residential water rates represent one of the principal tools used to encourage efficient water use, an important question remains: What types of water use are conservation-oriented rate structures actually intended to influence?

The answer is not simply "less water use." Modern conservation policy recognizes that different residential water uses serve different purposes. Some uses are essential to health, sanitation, and ordinary household living, while others provide greater opportunities for voluntary conservation. Understanding this distinction is important because conservation-oriented rate design seeks to reduce unnecessary demand without discouraging the reasonable use of water required for everyday life.

Essential household water use includes activities that are fundamental to maintaining health, safety, and ordinary living conditions. Drinking, food preparation, cooking, bathing, personal hygiene, sanitation, and laundry are all routine activities that require water regardless of season or individual lifestyle. Although households may improve efficiency by installing water-saving fixtures or appliances, these activities cannot be eliminated without affecting basic living standards.

For this reason, conservation programs generally do not seek to discourage essential household water use itself. Instead, many conservation initiatives focus on improving the efficiency with which essential water is used. Public education encourages shorter shower times, prompt leak repairs, and efficient household practices. Rebate programs promote the installation of high-efficiency toilets, showerheads, clothes washers, and other fixtures that reduce water consumption while maintaining the same essential household functions. The objective is not to reduce access to necessary water, but to reduce the amount of water required to accomplish those activities.

Other residential water uses often provide greater opportunities for voluntary conservation. Depending on local conditions, climate, and customer circumstances, examples may include portions of seasonal landscape irrigation, ornamental watering, or other discretionary outdoor uses. Unlike essential household consumption, these uses can frequently be reduced, rescheduled, or managed more efficiently without affecting basic health or sanitation. As a result, conservation policies often place greater emphasis on influencing discretionary demand where customers have greater flexibility to change their water use.

This distinction is reflected throughout the water industry. Federal guidance from the U.S. Environmental Protection Agency emphasizes improving water-use efficiency rather than limiting essential household needs. Similarly, industry organizations such as the American Water Works Association distinguish between indoor household consumption and outdoor demand when evaluating residential water use and conservation practices. Although individual utilities may adopt different conservation strategies depending upon local conditions, the underlying objective remains consistent: encourage efficient water use while maintaining reliable access to water required for ordinary household life.[14]

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[14] U.S. Environmental Protection Agency, WaterSense, “How We Use Water”; William B. DeOreo et al., Residential End Uses of Water, Version 2: Executive Report, Water Research Foundation, Project 4309, Report 4309A (2016); American Water Works Association, Water Conservation Programs—A Planning Manual (Manual M52), 2nd ed. (2017).

The distinction between essential and discretionary water use also helps explain why many conservation-oriented rate structures rely upon progressively higher prices as consumption increases. As discussed in the previous chapter, inclining block rates do not reduce the price of essential water use. Rather, they increase the price of additional consumption beyond an initial allocation. In doing so, the rate structure seeks to encourage customers to reduce water use where greater flexibility exists while preserving ordinary household consumption within the initial tier.

The New York Public Service Commission's own proceedings reinforce this distinction. In approving Veolia Water New York's conservation-oriented residential rate structure, the Commission explained not only that the inclining block rates were designed to discourage discretionary usage, but also that the highest residential rate block was "intended to approximate discretionary seasonal usage."[15] This description is significant because it confirms that the highest conservation tier was designed to influence water use beyond ordinary household needs rather than essential day-to-day consumption.

New York's recent regulatory proceedings demonstrate that this distinction is more than a theoretical concept. Liberty Utilities' Threshold Analysis, required as part of the Commission-approved Joint Proposal in Case 23-W-0235, specifically examined residential customers reaching Tier 4 during non-peak months, when outdoor irrigation would be expected to be substantially lower. By focusing on October through April and examining customers whose consumption appeared to consist primarily of indoor water use, the study sought to determine whether the highest conservation rate block was affecting households whose water use could not reasonably be attributed to seasonal outdoor demand.[16]

The Threshold Analysis did not assume that every instance of higher residential water use reflected discretionary consumption. Instead, it recognized the importance of examining actual usage patterns before drawing conclusions. Liberty evaluated multiple years of billing information, reviewed customer accounts, considered census data, examined available property information, and analyzed household water-use estimates derived from American Water Works Association data. The study further acknowledged that, if indoor-only water use were found to be reaching Tier 4, additional study could be undertaken in consultation with Department of Public Service Staff. This structured approach reflects an important principle of conservation policy: effective conservation should be informed by evidence rather than assumptions.[17]

Equally important, the Threshold Analysis demonstrates that New York's regulatory framework already recognizes the value of distinguishing between different patterns of residential water use. Rather than treating all higher consumption identically, the Commission-approved process required further examination of situations where indoor household demand alone might be associated with the highest conservation tier. The purpose of that analysis was not to weaken conservation objectives, but to better understand how conservation-oriented rate structures were operating in practice.

Understanding this distinction provides the foundation for examining New York's current residential conservation rate structure. Having established the broader conservation principles, the purpose of tiered rates, and the importance of distinguishing between essential household use and discretionary demand, the report now turns to the manner in which these principles have been incorporated into New York's current residential water rate framework.

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[15] New York State Public Service Commission, Order Adopting Joint Proposal as Modified and Establishing Rate Plan, Case 23-W-0111 (issued May 16, 2024).
[16] Joint Proposal and Appendices, Case 23-W-0235 (filed May 31, 2024); Liberty Utilities (New York Water) Corp., Threshold Analysis Study 2024, Case 23-W-0235 (filed December 27, 2024).
[17] Liberty Utilities (New York Water) Corp., Threshold Analysis Study 2024, Case 23-W-0235 (filed December 27, 2024).

Chapter 4

Conservation-Oriented Residential Rate Design Under New York Public Service Commission Regulation

The preceding chapters established that water conservation is an important public policy objective, that tiered residential water rates represent one of the principal tools used to encourage efficient water use, and that conservation policy distinguishes between essential household water use and discretionary demand. The next step is to examine how these principles have been incorporated into the regulatory framework governing New York's investor-owned water utilities.

The New York Public Service Commission is responsible for regulating investor-owned water utilities to ensure that rates are just and reasonable while providing safe, reliable, and adequate service. Through comprehensive rate proceedings, the Commission reviews utility revenues, infrastructure investment, customer service, conservation initiatives, and residential rate design before approving tariffs that govern how water service is billed.

Within this regulatory framework, conservation is not treated as a stand-alone initiative. Instead, it is incorporated into a broader package of utility programs intended to promote efficient water use while maintaining reliable public service. Residential rate structures, customer education, conservation outreach, leak reduction programs, rebates for water-efficient fixtures, and other demand-management measures are considered together as complementary elements of a comprehensive conservation strategy.

The Commission's recent proceedings involving Liberty Utilities (New York Water) Corp. and Veolia Water New York illustrate this integrated approach. Although the details of their approved tariffs differ, both utilities operate under Commission-approved residential rate structures that use inclining block pricing to encourage efficient water use. These pricing structures function alongside conservation programs designed to educate customers, improve water-use efficiency, and reduce unnecessary demand.

Importantly, the Commission's regulatory approach does not treat conservation-oriented rate structures as static. Instead, the operation of those rate structures remains subject to continuing evaluation when questions arise regarding how they function under actual customer conditions.

The Liberty Utilities rate proceeding provides one of the clearest examples. As part of the Commission-approved Joint Proposal, Liberty was required to conduct a detailed Threshold Analysis examining residential customers reaching Tier 4 during non-peak months. The purpose of the study was to determine whether residential customers whose usage appeared to consist primarily of indoor household demand were reaching the highest residential conservation tier. The Joint Proposal further provided that, if indoor household demand was found to reach Tier 4, additional study would be undertaken in consultation with Department of Public Service Staff to determine whether further evaluation or potential modifications were appropriate. This requirement demonstrates that the Commission expected the operation of conservation-oriented rate structures to be informed by evidence gathered under real-world conditions rather than by assumptions alone.[18]

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[18] New York State Public Service Commission, Order Adopting Terms of Joint Proposal and Establishing Rate Plan, Case 23-W-0235 (issued August 15, 2024); Liberty Utilities (New York Water) Corp., Threshold Analysis Study 2024, Case 23-W-0235 (filed December 27, 2024).

The Veolia Water New York proceeding reflects the same broader conservation philosophy. In approving the Joint Proposal, the Commission continued conservation-oriented residential rate design together with customer education, water-efficiency programs, conservation outreach, and rebate initiatives. These complementary measures demonstrate that conservation pricing forms only one component of a broader regulatory strategy intended to encourage efficient water use while maintaining reliable utility service. As the Commission explained in approving the Joint Proposal, "The rate structure established in the Joint Proposal is conservation-oriented, with inclining rates designed to discourage discretionary usage, particularly in the summer."[19] This statement reflects the Commission's own understanding of the purpose underlying the approved residential rate structure.

Taken together, these proceedings demonstrate several consistent characteristics of New York's regulatory approach. Conservation remains a continuing public policy objective. Residential rate design provides one mechanism for encouraging efficient water use. Conservation pricing operates alongside education, outreach, and efficiency programs rather than replacing them. Finally, the Commission's own proceedings demonstrate a willingness to evaluate how conservation-oriented rate structures perform under actual customer conditions when questions arise regarding their operation.

This regulatory framework naturally leads to the next question examined in this report. If conservation-oriented residential rate structures apply a common Tier 1 allocation to all residential customers, what does existing research tell us about the relationship between household occupancy and ordinary residential water demand? Understanding that relationship is essential before evaluating how conservation policies operate across households of different occupancy levels.

[19] New York State Public Service Commission, Order Adopting Joint Proposal as Modified and Establishing Rate Plan, Case 23-W-0111 (issued May 16, 2024); Joint Proposal, § XVIII, “Conservation & Efficiency Program,” Case 23-W-0111 (dated January 4, 2024).

Chapter 5

Household Occupancy and Residential Water Demand

Having examined New York's conservation-oriented regulatory framework, the next question is whether ordinary residential water demand is the same for every household. This question is fundamental because residential rate structures generally apply the same usage tiers to households without regard to the number of residents sharing a single water meter. Understanding how household occupancy influences water demand therefore provides important context for evaluating how conservation-oriented rate structures operate in practice.

Research conducted by government agencies, water utilities, and professional organizations consistently demonstrates that household occupancy is a significant factor influencing ordinary residential water use. Although many variables affect consumption—including climate, housing characteristics, plumbing fixtures, customer behavior, and outdoor irrigation—the number of people living in a home has repeatedly been identified as an important determinant of indoor household demand.[20]

This relationship reflects the practical realities of everyday life. As more residents share one household, ordinary household water needs naturally increase. Drinking, preparing meals, cooking, bathing, personal hygiene, flushing toilets, washing dishes, laundering clothing, and cleaning all occur more frequently simply because more people rely upon the same residential water service. While the amount used by each individual may vary, the overall relationship between household occupancy and indoor water demand has been consistently documented across numerous studies and utility planning documents.

Importantly, this relationship should not be confused with inefficient or wasteful water use. In most cases, higher household demand results from additional people performing the same essential daily activities rather than from unnecessary consumption. As a result, household occupancy has long been recognized as an important consideration when utilities seek to understand patterns of ordinary residential water use.

Water utilities have likewise recognized this relationship when forecasting customer demand and planning system capacity. Residential demand studies frequently evaluate household occupancy alongside other demographic and housing characteristics because changes in occupancy directly influence expected indoor water consumption. Conservation research similarly distinguishes between water use associated with ordinary household living and water use associated with activities that may provide greater opportunities for voluntary conservation.[21]

This distinction also explains why many conservation studies examine indoor household demand separately from total residential consumption. Indoor water use tends to remain comparatively stable throughout the year because it is driven by everyday household needs. Outdoor demand, by contrast, often varies according to season, weather, landscape characteristics, and local watering practices. Separating

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[20] William B. DeOreo et al., Residential End Uses of Water, Version 2: Executive Report, Water Research Foundation, Project 4309, Report 4309A (2016); U.S. Environmental Protection Agency, WaterSense, “Understanding Your Water Bill”; Liberty Utilities (New York Water) Corp., Threshold Analysis Study 2024, Case 23-W-0235 (filed December 27, 2024).

[21] William B. DeOreo et al., Residential End Uses of Water, Version 2: Executive Report, Water Research Foundation, Project 4309, Report 4309A (2016); Liberty Utilities (New York Water) Corp., Threshold Analysis Study 2024, Case 23-W-0235 (filed December 27, 2024).

these two components allows utilities to better understand the different factors influencing overall residential water use.

The Liberty Utilities Threshold Analysis reflects this same analytical approach. Rather than evaluating annual consumption alone, the Commission-approved study concentrated on non-peak months when outdoor irrigation would generally be expected to be substantially lower. By examining customers whose water use appeared to consist primarily of indoor household demand, Liberty sought to determine whether ordinary household living alone could result in customers reaching the highest conservation tier. The study also considered household occupancy where available, recognizing the number of residents as one of several factors relevant to understanding residential water demand. This approach demonstrates that New York's own regulatory process acknowledges the importance of distinguishing between indoor household demand and seasonal discretionary consumption when evaluating conservation-oriented rate structures.[22]

The significance of household occupancy extends beyond a single utility proceeding. As utilities seek to encourage efficient water use, understanding the factors that influence ordinary household demand becomes essential for evaluating how conservation programs function under real-world conditions. Recognizing that occupancy affects residential consumption does not diminish the importance of conservation. Instead, it improves the ability of utilities and regulators to distinguish between water use associated with ordinary household living and water use that presents greater opportunities for voluntary conservation.

Individual customer bills help illustrate this relationship. Two households may occupy similar homes, receive service through comparable water meters, and be subject to the same conservation-oriented rate structure, yet experience different monthly water use simply because different numbers of people share the home. These examples are useful for illustrating how household occupancy affects ordinary water demand, but they should be understood as illustrations rather than primary evidence. The report's broader conclusion rests on the consistent findings of government agencies, utility research, and industry studies demonstrating that household occupancy is a significant driver of ordinary indoor residential water demand.

Today's households take many forms. Some consist of a single resident. Others include couples, households with children, grandparents, multiple generations living together, or unrelated adults sharing one household, sometimes to help reduce housing costs. While household occupancy may differ considerably, the common factor is that as more people share one household, ordinary household water needs naturally increase because more people rely upon the same residential water service for everyday activities. Conservation policy recognizes this relationship when evaluating residential water demand, even as utilities continue to encourage efficient water use through education, technology, and conservation-oriented pricing.

Recognizing the relationship between household occupancy and residential water demand naturally leads to the next question. If utilities have long understood that ordinary household water needs increase as more people share a home, how have water providers incorporated that understanding into conservation programs while continuing to preserve conservation objectives?

That question is examined in the next chapter through a review of comparable utility implementation in other jurisdictions.

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[22] Liberty Utilities (New York Water) Corp., Threshold Analysis Study 2024, Case 23-W-0235 (filed December 27, 2024).

Chapter 6

Comparable Utility Implementation

The preceding chapter established that household occupancy is a significant factor influencing ordinary residential water demand. As more residents share one household, everyday water needs naturally increase because more people rely upon the same residential water service for drinking, cooking, bathing, sanitation, laundry, and other essential activities. Recognizing this relationship naturally leads to the next question: How have water utilities incorporated household occupancy into conservation programs while continuing to encourage efficient water use?

A review of water utilities in other jurisdictions demonstrates that conservation-oriented rate structures and household occupancy adjustments are not mutually exclusive concepts. Rather than abandoning tiered pricing, several utilities have developed administrative procedures that preserve conservation objectives while recognizing documented differences in ordinary residential water demand among households of different sizes.

Although these utilities operate under different regulatory frameworks than New York, they provide practical examples of how conservation policies can accommodate household-occupancy adjustments through verification or staff-review procedures without eliminating conservation-oriented pricing. For that reason, the examples discussed below are presented as documented implementation examples rather than as legal precedent.

One of the most extensively documented examples is the Irvine Ranch Water District (IRWD) in California. IRWD operates a budget-based conservation rate structure in which each residential customer receives a customized water budget rather than a uniform consumption threshold. That budget is calculated using several factors, including indoor household needs and outdoor irrigation requirements. When the number of residents living within the household exceeds the assumptions used to establish the initial indoor allocation, customers may request an adjustment through the District's established administrative process.[23]

Importantly, IRWD's approach does not eliminate conservation pricing. Instead, it adjusts the amount of water included within the customer's initial allocation before higher conservation prices apply. Water consumed beyond the adjusted allocation remains subject to progressively higher conservation rates. The conservation framework therefore remains intact while recognizing documented differences in ordinary household demand.

The District also demonstrates that household occupancy adjustments can be administered through routine utility operations. Customers requesting an additional-occupant variance must provide proof of permanent residency for each person. IRWD identifies examples that include birth certificates, school records, preprinted checks, income-tax returns, driver’s licenses, and lease agreements. These procedures demonstrate that an occupancy adjustment can be supported by documentary review rather than customer self-certification alone.[24]

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[23] Irvine Ranch Water District, “Residential Water Rates” and “Request A Water Variance.”
[24] Irvine Ranch Water District, “Request A Water Variance”; Irvine Ranch Water District, Rules and Regulations, §§ 12.7.1–12.7.2 (adopted June 9, 2025).

A similar approach has been adopted by the Las Virgenes Municipal Water District (LVMWD). Like IRWD, LVMWD employs conservation-oriented water budgets and allows customers to request an adjustment when the number of permanent residents changes. The current adjustment form asks the customer to report the total number of permanent residents and states that all adjustments are subject to District review before the water budget is changed.[25]

These examples demonstrate an important principle. The adjustment applies to the customer's conservation baseline rather than to the conservation price itself. Higher conservation rates remain fully applicable once the adjusted allocation has been exceeded. Consequently, the incentive to conserve water is preserved while recognizing that households with more residents may require additional water to meet ordinary daily needs.[26]

The administrative procedures adopted by these utilities also illustrate another important point. Household occupancy adjustments are not unlimited or automatic; they are available only after a customer submits a request for review. IRWD requires proof of permanent residency for each additional household member and requires an approved variance to be reconfirmed by the expiration date specified by the District. LVMWD requires the customer to report the total number of permanent residents and subjects the requested adjustment to District review. These procedures demonstrate that utilities can apply different levels of verification and reconfirmation while preserving defined eligibility and review standards.[27]

The City of Boulder, Colorado, provides another example of a utility recognizing household occupancy within its conservation framework. Like other jurisdictions examined in this report, Boulder has developed procedures allowing residential water budgets to reflect the number of residents living within a household while continuing to encourage efficient water use through conservation-oriented pricing. Although the administrative details differ, the underlying principle remains consistent: verified household occupancy may be considered without abandoning conservation objectives.[28]

These examples are significant not because New York is required to adopt another jurisdiction's policies, but because they demonstrate that conservation-oriented pricing and household occupancy adjustments are compatible in practice. Multiple utilities have demonstrated that it is administratively feasible to verify household occupancy, incorporate that information into residential water budgets, and continue using higher-priced conservation tiers to encourage efficient water use.

The examples also demonstrate that modern utility administration already provides practical tools for implementing such programs. IRWD and LVMWD accept online adjustment requests and electronic attachments where required, while Boulder provides an online water-budget adjustment application and formal review procedures. These practices show that occupancy-based adjustments can be administered through established customer-service processes rather than entirely new systems.[29]

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[25] Las Virgenes Municipal Water District, “Water Budgets” and “Water Budget Adjustment Request.”
[26] Irvine Ranch Water District, “Residential Water Rates”; Las Virgenes Municipal Water District, “Water Budgets.”

[27] Irvine Ranch Water District, “Request A Water Variance”; Irvine Ranch Water District, Rules and Regulations, §§ 12.7.1–12.7.2 (adopted June 9, 2025); Las Virgenes Municipal Water District, “Water Budget Adjustment Request.”

[28] City of Boulder, City Manager Rule 11-1-3.A(21), “Water Budget Policy Overview and Review Process,” Attachment A, § 6; City of Boulder, “Water Budget Adjustment Application.”
[29] IRWD, “Request A Water Variance”; LVMWD, “Water Budget Adjustment Request”; City of Boulder, “Water Budget Adjustment Application.”

Taken together, these comparable utilities demonstrate that conservation policy does not require a choice between encouraging efficient water use and recognizing verified differences in ordinary household demand. Instead, they illustrate that both objectives can operate within the same conservation framework through carefully designed administrative procedures and continued application of conservation-oriented pricing.

The next chapter examines these administrative procedures in greater detail, focusing on verification, documentation, privacy protections, renewals, and program administration. Understanding how utilities administer occupancy-based adjustments is essential for evaluating whether similar approaches could be implemented within New York's existing regulatory framework.

Chapter 7

Administrative Feasibility: Verification, Privacy, and Program Administration

The preceding chapter demonstrated that several conservation-oriented water utilities have incorporated household occupancy into their residential conservation programs while maintaining tiered rate structures. An equally important question, however, is whether such programs can be administered in a practical, reliable, and cost-effective manner.

The evidence reviewed for this report indicates that the answer is yes. The utilities examined use established customer-service functions, online application processes, staff review, and documentation procedures where required. Rather than creating entirely new administrative systems, these programs build upon functions already used to manage customer accounts and adjustment requests.[30]

A common feature among the utilities examined is that occupancy adjustments are voluntary rather than automatic. Customers who believe their household occupancy differs from the assumptions underlying the standard residential allocation may submit a request for review. Customers who do not seek an adjustment continue receiving service under the standard residential rate structure without any additional administrative requirements.

This voluntary approach offers two important advantages. First, it significantly reduces administrative complexity because utilities review only those applications submitted by customers requesting an adjustment rather than verifying every residential account. Second, it respects customer privacy by ensuring that households who prefer not to provide occupancy documentation are under no obligation to do so. Participation remains entirely optional, allowing customers to decide whether the potential benefit of an occupancy adjustment outweighs the need to submit supporting information.

Verification procedures rely upon administrative practices that utilities already perform in other contexts. IRWD requires proof of permanent residency for each additional household member and provides multiple examples of acceptable evidence. Boulder permits applications to be audited and authorizes staff to require additional documentation when necessary. LVMWD's current form requires customers requesting a resident-count change to report the total number of permanent residents and states that all adjustments are subject to District review, although the form does not specify residency documents for that category. The evidence therefore shows that verification and review requirements can be tailored by utility rather than imposed through one uniform document standard.[31]

Modern utility technology has further simplified program administration. The utilities reviewed provide online application forms or account-management channels through which customers can submit requests, attach documents where required, and communicate with customer service. Electronic submission and digital processing can reduce paperwork and support efficient administrative review.[32]

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[30] Irvine Ranch Water District, "Request A Water Variance" and Rules and Regulations, §§ 12.7.1–12.7.2; Las Virgenes Municipal Water District, "Water Budget Adjustment Request"; City of Boulder, City Manager Rule 11-1-3.A(21), Attachment A, § 6.

[31] Irvine Ranch Water District, "Request A Water Variance" and Rules and Regulations, §§ 12.7.1–12.7.2; Las Virgenes Municipal Water District, "Water Budget Adjustment Request"; City of Boulder, City Manager Rule 11-1-3.A(21), Attachment A, § 6.

In practice, much of the administrative process can be completed electronically. Customers submit an online request and, where required, attach supporting documentation; utility personnel then review the request under established program rules. This approach combines digital submission with staff judgment and allows utilities to administer adjustments through existing customer-service operations.[33]

Privacy protections are not identical across the programs reviewed. IRWD's rules expressly provide that documents submitted during the variance process are reviewed and then returned upon request or destroyed to protect customer privacy, subject to information the District must retain. LVMWD and the City of Boulder publish privacy policies governing information submitted through their websites. These examples demonstrate that occupancy-adjustment programs can be paired with privacy controls, while any New York program would need clearly defined standards for collection, access, retention, and deletion.[34]

Periodic renewal or reconfirmation requirements are also used in documented programs. IRWD requires approved variances to be reconfirmed by the expiration date specified by the District, and Boulder's governing rule states that household-size adjustments are renewable on an annual basis. Because household composition can change over time, renewal or reconfirmation procedures help ensure that an adjustment continues to reflect current conditions.[35]

Program integrity is further supported by utility authority to review requests, require additional documentation, deny unsupported applications, and limit or reconfirm approved adjustments. IRWD's rules authorize proof requirements, written denial, specified validity periods, and reconfirmation; Boulder permits audit and additional documentation; and LVMWD subjects adjustments to District review. These safeguards provide mechanisms for addressing incomplete or inaccurate information without affecting customers who remain under the standard residential rate structure.[36]

The research also demonstrates that administrative feasibility should not be viewed solely in terms of cost. Administrative processes must also be evaluated according to their accuracy, transparency, consistency, and ability to protect customer information. The utilities examined throughout this report illustrate that these objectives are not mutually exclusive. Verification procedures, privacy protections, renewal requirements, and conservation-oriented pricing can operate together within a single administrative framework.

Importantly, the evidence reviewed does not suggest that occupancy-based conservation programs require utilities to verify every aspect of a customer's household. Instead, they rely upon reasonable documentation sufficient to administer the program fairly and consistently. This approach reflects a practical balance between administrative efficiency, customer privacy, and program integrity.

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[32] Irvine Ranch Water District, "Request A Water Variance"; Las Virgenes Municipal Water District, "Water Budget Adjustment Request"; City of Boulder, "Water Budget Adjustment Application."
[33] Irvine Ranch Water District, "Request A Water Variance" and Rules and Regulations, § 12.7.1; Las Virgenes Municipal Water District, "Water Budget Adjustment Request"; City of Boulder, City Manager Rule 11-1-3.A(21), Attachment A, § 6.
[34] Irvine Ranch Water District, Rules and Regulations, § 12.7.1(5), and "Privacy Policy"; Las Virgenes Municipal Water District, "Privacy Policy"; City of Boulder, "Privacy Policy."
[35] Irvine Ranch Water District, "Request A Water Variance" and Rules and Regulations, § 12.7.2(3)(b); City of Boulder, City Manager Rule 11-1-3.A(21), Attachment A, § 6.
[36] Irvine Ranch Water District, Rules and Regulations, §§ 12.7.1–12.7.2; Las Virgenes Municipal Water District, "Water Budget Adjustment Request"; City of Boulder, City Manager Rule 11-1-3.A(21), Attachment A, § 6.

Taken together, these administrative practices demonstrate that household occupancy adjustments are not merely theoretical concepts. They are operational programs that have been implemented, administered, and maintained by water utilities using established customer service procedures while continuing to support broader conservation objectives.

The next chapter brings together the evidence developed throughout this report by examining how the research fits within New York's existing regulatory framework. Rather than introducing recommendations, it integrates the findings from the preceding chapters to identify the conclusions that naturally emerge from the evidence.

Chapter 8

Integrating the Research Within New York's Regulatory Framework

The preceding chapters examined water conservation as a public policy objective, the purpose of conservation-oriented residential rate design, the distinction between essential household water use and discretionary demand, New York's regulatory framework, the relationship between household occupancy and residential water demand, comparable utility implementation, and the administrative feasibility of occupancy-based programs. The remaining task is to consider how these findings relate to one another within New York's existing regulatory framework.

Viewed individually, each chapter examines a different aspect of conservation-oriented residential water rate design. Considered together, however, the evidence presents a consistent and coherent picture of how conservation policy, household water demand, administrative practice, and regulatory oversight interact within existing utility operations.

The research therefore does not challenge the importance of water conservation. Instead, it examines how conservation-oriented policies function when applied to households with differing ordinary residential water demands. Throughout this report, the central question has not been whether conservation should continue, but how established conservation objectives operate under documented residential usage patterns.

The evidence reviewed throughout this report demonstrates that ordinary household water demand naturally increases as more people share a home. This relationship has been consistently documented by government agencies, water utilities, and professional organizations, and reflects the cumulative effect of essential daily household activities rather than inherently inefficient water use. At the same time, conservation policy recognizes an important distinction between water required for ordinary household living and water use that presents greater opportunities for voluntary conservation.[37]

New York's own regulatory proceedings reflect this distinction. The Liberty Utilities Threshold Analysis specifically examined customers reaching the highest conservation tier during non-peak months, when outdoor irrigation would generally be expected to be minimal. Rather than assuming that every instance of higher residential consumption reflected discretionary use, the Commission-approved process required additional analysis of indoor household demand and recognized household occupancy as one of several factors relevant to understanding residential water use. This demonstrates that New York's existing regulatory framework already acknowledges the importance of examining the circumstances underlying higher residential consumption before drawing broader conclusions.[38]

The research further demonstrates that an adjustment to the initial residential water allocation based on verified household occupancy is compatible with conservation-oriented rate design. Comparable utilities examined throughout this report continue to employ tiered or budget-based conservation pricing while

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[37] U.S. Environmental Protection Agency, WaterSense, “How We Use Water” and “Understanding Your Water Bill”; William B. DeOreo et al., Residential End Uses of Water, Version 2: Executive Report, Water Research Foundation, Project 4309, Report 4309A (2016); Liberty Utilities (New York Water) Corp., Threshold Analysis Study 2024, Case 23-W-0235.

[38] New York State Public Service Commission, Order Adopting Terms of Joint Proposal and Establishing Rate Plan, Case 23-W-0235 (issued August 15, 2024); Liberty Utilities (New York Water) Corp., Threshold Analysis Study 2024, Case 23-W-0235.

providing administrative procedures for occupancy-based adjustments. In the programs reviewed, those procedures range from reporting permanent-resident count and staff review to documentary proof, District-specified reconfirmation, and annual renewal in Boulder. The utilities have not abandoned conservation pricing, eliminated higher-priced conservation tiers, or replaced conservation objectives with flat-rate billing. Instead, they have incorporated occupancy-based adjustments into existing conservation frameworks while preserving the underlying purpose of encouraging efficient water use.[39]

The comparable utilities examined in this report operate under regulatory frameworks that differ from New York's. Accordingly, these examples are presented to illustrate documented administrative practices rather than to suggest that New York is legally or operationally bound to adopt any particular approach. Their value lies in demonstrating that occupancy-based adjustments—supported by documentary verification in some programs and staff review in all programs examined—have been implemented within conservation-oriented rate structures while preserving broader conservation objectives.

The research also demonstrates that administrative mechanisms necessary to support such programs already exist. Across the programs reviewed, those mechanisms include voluntary applications, staff review, online submission, documentation where required, privacy policies or document-handling rules, and periodic renewal or reconfirmation in some programs. These practices have been incorporated into ordinary utility administration while conservation-oriented pricing remains in effect.[40]

Taken together, these findings demonstrate that several concepts often viewed as competing objectives are, in practice, capable of operating together. Conservation pricing, efficient water use, occupancy-based adjustments to the initial residential water allocation, administrative feasibility, and customer privacy are not mutually exclusive. Rather, the evidence reviewed throughout this report demonstrates that these objectives have been successfully integrated within documented utility programs.

The New York Public Service Commission's own regulatory approach likewise reflects a willingness to evaluate conservation-oriented rate structures using actual customer data. Rather than treating approved residential rate structures as static or immune from future review, recent proceedings demonstrate that the Commission expects utilities to examine how conservation-oriented pricing functions under real-world operating conditions and to undertake additional study when appropriate. This evidence-based approach provides an important context for evaluating future policy questions while remaining consistent with established conservation objectives.

Importantly, the evidence assembled throughout this report does not point toward abandoning conservation-oriented residential rate design. Instead, it supports a more focused conclusion. The research demonstrates that conservation objectives, occupancy-based adjustments, verification or review procedures, administrative practicality, and customer privacy have all been shown to operate together within existing utility practice. These findings establish the factual context within which future policy considerations may be evaluated.

This chapter does not recommend any particular regulatory outcome. Rather, it integrates the evidence developed throughout the report and identifies the conclusions that naturally emerge from that evidence. The formal findings of this research are presented in the following chapter before any policy recommendations are considered.

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[39] IRWD, "Residential Water Rates" and "Request A Water Variance"; LVMWD, "Water Budgets" and "Water Budget Adjustment Request"; City of Boulder, City Manager Rule 11-1-3.A(21), Attachment A, § 6.

[40] IRWD, "Request A Water Variance" and Rules and Regulations, §§ 12.7.1–12.7.2; LVMWD, "Water Budget Adjustment Request" and "Privacy Policy"; City of Boulder, City Manager Rule 11-1-3.A(21), Attachment A, § 6, "Water Budget Adjustment Application," and "Privacy Policy."

Chapter 9

Research Findings

The preceding chapters examined water conservation policy, conservation-oriented residential rate design, New York's regulatory framework, household occupancy, comparable utility implementation, and administrative feasibility. Based upon the evidence reviewed throughout this report, the following findings are supported by the documented research.

Finding 1

Water conservation is an established public policy objective.

The evidence demonstrates that water conservation is a longstanding objective of public policy. New York regulatory proceedings, conservation programs, and water resource management policies consistently recognize efficient water use as an important means of protecting water resources, supporting reliable utility service, and promoting long-term sustainability. Conservation therefore serves as the policy foundation for modern residential water rate design.[41]

Finding 2

Conservation-oriented residential rate structures encourage efficient water use through pricing.

Tiered, or inclining block, residential water rates increase the cost of water consumed beyond an initial allocation. Rather than reducing the price of essential household water use, these rate structures encourage efficient water use by applying progressively higher prices to additional consumption. The evidence demonstrates that conservation-oriented pricing remains an established regulatory tool used by many water utilities, including investor-owned utilities regulated by the New York Public Service Commission.[42]

Finding 3

Conservation policy distinguishes between essential household water use and discretionary demand.

Government guidance, industry research, and utility conservation programs consistently distinguish between water required for ordinary household living and water use that presents greater opportunities for voluntary conservation. This distinction forms an important part of modern conservation policy and provides context for understanding conservation-oriented residential rate design.[43]

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[41] New York State Department of Environmental Conservation, “Water Use & Conservation” and “Water Conservation Requirements”; New York State Public Service Commission, Order Adopting Joint Proposal as Modified and Establishing Rate Plan, Case 23-W-0111 (issued May 16, 2024).

[42] New York State Public Service Commission, Order Adopting Joint Proposal as Modified and Establishing Rate Plan, Case 23-W-0111 (issued May 16, 2024); American Water Works Association, Water Conservation Programs—A Planning Manual (Manual M52), 2nd ed. (2017).

[43] U.S. Environmental Protection Agency, WaterSense, “How We Use Water”; William B. DeOreo et al., Residential End Uses of Water, Version 2: Executive Report, Water Research Foundation, Project 4309, Report 4309A (2016); American Water Works Association, Water Conservation Programs—A Planning Manual (Manual M52), 2nd ed. (2017).

Finding 4

Household occupancy is a significant determinant of ordinary residential water demand.

The research consistently demonstrates that ordinary household water demand increases as more people share a home. This relationship reflects the cumulative effect of essential daily activities—including drinking, cooking, bathing, sanitation, laundry, and other routine household uses—rather than inherently inefficient water use. Household occupancy is therefore a documented factor influencing residential water demand.[44]

Finding 5

New York's regulatory framework recognizes the importance of evaluating conservation-oriented rate structures using actual customer data.

The Liberty Utilities Threshold Analysis demonstrates that the New York Public Service Commission's regulatory framework supports evaluating conservation-oriented residential rate structures through evidence gathered under actual operating conditions. Rather than assuming that all higher residential consumption reflects the same causes, the Commission-approved process recognized the importance of examining indoor household demand, seasonal usage patterns, and other relevant factors before drawing broader conclusions.[45]

Finding 6

Comparable utilities have incorporated occupancy-based adjustments into conservation-oriented rate structures while preserving conservation objectives.

The comparable utilities examined in this report demonstrate that household-occupancy adjustments have been incorporated into conservation-oriented rate structures without eliminating higher-priced conservation tiers or abandoning broader conservation goals. These examples illustrate documented administrative practices rather than legal precedent for New York.[46]

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[44] William B. DeOreo et al., Residential End Uses of Water, Version 2: Executive Report, Water Research Foundation, Project 4309, Report 4309A (2016); U.S. Environmental Protection Agency, WaterSense, “Understanding Your Water Bill”; Liberty Utilities (New York Water) Corp., Threshold Analysis Study 2024, Case 23-W-0235.

[45] New York State Public Service Commission, Order Adopting Terms of Joint Proposal and Establishing Rate Plan, Case 23-W-0235 (issued August 15, 2024); Liberty Utilities (New York Water) Corp., Threshold Analysis Study 2024, Case 23-W-0235.

[46] Irvine Ranch Water District, “Residential Water Rates” and “Request A Water Variance”; Las Virgenes Municipal Water District, “Water Budgets” and “Water Budget Adjustment Request”; City of Boulder, City Manager Rule 11-1-3.A(21), Attachment A, § 6.

Finding 7

Occupancy-based conservation programs have been administered through established utility practices.

The research demonstrates that utilities have administered occupancy-based adjustments using voluntary applications, staff review, online submission, documentation where required, privacy policies or document-handling rules, and periodic renewal or reconfirmation in some programs. These practices demonstrate that occupancy verification and review can be incorporated into routine utility operations without requiring fundamentally new administrative systems.[47]

Finding 8

Conservation objectives, occupancy-based adjustments, verification or review procedures, administrative feasibility, and customer privacy are compatible within documented utility practice.

The evidence reviewed throughout this report demonstrates that these objectives are not mutually exclusive. Comparable utility programs show that conservation-oriented pricing, occupancy-based adjustments, verification or staff-review procedures, customer privacy, and practical administration can operate together within a single regulatory framework while continuing to encourage efficient water use.[48]

Finding 9

The evidence identifies no inherent conflict between conservation-oriented residential rate design and the use of verified household occupancy to adjust the initial residential water allocation while preserving higher-priced conservation tiers.

Nothing in the research reviewed for this report suggests that using verified household occupancy to adjust the initial residential water allocation is fundamentally incompatible with conservation-oriented residential rate structures. Instead, the documented evidence demonstrates that multiple utilities have successfully integrated occupancy-based adjustments while maintaining higher-priced conservation tiers and supporting broader water conservation objectives.[49]

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[47] Irvine Ranch Water District, “Request A Water Variance” and Rules and Regulations, §§ 12.7.1–12.7.2; Las Virgenes Municipal Water District, “Water Budget Adjustment Request” and “Privacy Policy”; City of Boulder, City Manager Rule 11-1-3.A(21), Attachment A, § 6, “Water Budget Adjustment Application,” and “Privacy Policy.”

[48] Irvine Ranch Water District, “Residential Water Rates,” “Request A Water Variance,” and Rules and Regulations, §§ 12.7.1–12.7.2; Las Virgenes Municipal Water District, “Water Budgets,” “Water Budget Adjustment Request,” and “Privacy Policy”; City of Boulder, City Manager Rule 11-1-3.A(21), Attachment A, § 6, and “Privacy Policy.”

[49] Irvine Ranch Water District, “Residential Water Rates,” “Request A Water Variance,” and Rules and Regulations, §§ 12.7.1–12.7.2; City of Boulder, City Manager Rule 11-1-3.A(21), Attachment A, § 6.

Finding 10

The evidence supports evaluation of whether an optional household-occupancy adjustment to the initial residential water allocation can be implemented within New York's existing conservation-oriented residential rate structures using documented customer usage and established administrative practices.

The research assembled throughout this report demonstrates that evaluation of an optional household-occupancy adjustment should be based on documented customer usage, practical administrative experience, and objective evidence. Such evaluation is consistent with New York’s existing regulatory approach and provides an evidence-based foundation for determining whether the adjustment can be implemented within the Public Service Commission’s established framework while preserving conservation objectives.[50]

The findings presented above are derived from the evidence examined throughout this report. They do not constitute policy recommendations. Rather, they identify the principal conclusions supported by the documented research. The final chapter builds upon these findings by presenting a recommendation for Commission consideration within New York's existing regulatory framework.

[50] New York State Public Service Commission, Order Adopting Terms of Joint Proposal and Establishing Rate Plan, Case 23-W-0235 (issued August 15, 2024); Liberty Utilities (New York Water) Corp., Threshold Analysis Study 2024, Case 23-W-0235; Irvine Ranch Water District, “Request A Water Variance”; Las Virgenes Municipal Water District, “Water Budget Adjustment Request”; City of Boulder, City Manager Rule 11-1-3.A(21), Attachment A, § 6.

Chapter 10

Recommendation for Commission Consideration

The preceding chapters examined water conservation policy, conservation-oriented residential rate design, New York's existing regulatory framework, household occupancy, comparable utility implementation, administrative feasibility, and the findings supported by the available research. The purpose of this final chapter is not to revisit that evidence, but to present a recommendation for Commission consideration that is consistent with the conclusions established throughout the report.

The research demonstrates that water conservation remains an important public policy objective and that conservation-oriented residential rate structures continue to serve an important role in encouraging efficient water use. Nothing in this report suggests that these conservation principles should be abandoned. Instead, the evidence indicates that conservation objectives, occupancy-based adjustments, verification or staff-review procedures, administrative feasibility, and customer privacy have been successfully integrated by several water utilities through documented administrative practices.[51]

Accordingly, this report recommends that the New York Public Service Commission evaluate the implementation of an optional adjustment to the initial residential water allocation based on verified household occupancy within future conservation-oriented residential rate proceedings involving investor-owned water utilities.

The proposed adjustment would not replace existing conservation-oriented residential rate structures. Nor would it reduce the conservation price applicable to higher residential water use. Rather, the proposal would allow participating households, upon verification of household occupancy, to receive an adjusted initial residential allocation before higher conservation prices apply. All water consumed beyond the adjusted allocation would continue to be billed under the existing conservation-oriented rate structure.

Participation should remain entirely voluntary. Households choosing not to request an adjustment would continue receiving service under the standard residential tariff without any additional administrative requirements. This voluntary approach respects customer privacy by ensuring that no household is required to submit occupancy documentation unless it chooses to participate.

Eligibility should be based upon verified household occupancy using reasonable documentation established by the utility and approved through the Commission's regulatory process. Consistent with practices documented in comparable utility programs, customers should be permitted to provide one or more forms of acceptable documentation demonstrating the number of residents sharing the household. Utilities would retain the authority to review submitted information, request additional documentation when appropriate, deny unsupported applications, and establish reasonable renewal requirements to maintain program accuracy.[52]

Administration should build upon existing utility practices whenever possible. Online application forms, electronic document submission, staff review, and established customer-service procedures already used in the programs examined provide practical mechanisms for administering occupancy verification while protecting customer information and limiting administrative burden.[53]

The purpose of an occupancy adjustment would not be to reduce the overall cost of water service or weaken conservation incentives. Instead, it would recognize that households with more residents naturally

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[51] New York State Public Service Commission, Order Adopting Joint Proposal as Modified and Establishing Rate Plan, Case 23-W-0111 (issued May 16, 2024); Liberty Utilities (New York Water) Corp., Threshold Analysis Study 2024, Case 23-W-0235; Irvine Ranch Water District, “Request A Water Variance”; Las Virgenes Municipal Water District, “Water Budget Adjustment Request”; City of Boulder, City Manager Rule 11-1-3.A(21), Attachment A, § 6.

[52] Irvine Ranch Water District, “Request A Water Variance” and Rules and Regulations, §§ 12.7.1–12.7.2; City of Boulder, City Manager Rule 11-1-3.A(21), Attachment A, § 6.

[53] Irvine Ranch Water District, “Request A Water Variance” and “Privacy Policy”; Las Virgenes Municipal Water District, “Water Budget Adjustment Request” and “Privacy Policy”; City of Boulder, “Water Budget Adjustment Application” and “Privacy Policy.”

require more essential water for ordinary daily activities before discretionary consumption becomes a meaningful consideration. By adjusting the initial residential allocation while preserving progressively higher conservation prices beyond that allocation, the proposal seeks to maintain the existing conservation framework while recognizing documented differences in ordinary household water demand.

Any consideration of such a program should occur through the Public Service Commission's established regulatory process. Utilities, Department of Public Service Staff, consumer advocates, municipalities, and other interested parties should have the opportunity to review the available evidence, evaluate administrative procedures, consider implementation costs, and assess potential customer impacts before any policy changes are adopted. This collaborative regulatory process is consistent with the Commission's longstanding approach to utility regulation and conservation policy.

This report does not conclude that a particular adjustment formula, occupancy threshold, or verification standard should be adopted. Those implementation details require utility-specific analysis and regulatory review. Rather, the research supports a narrower conclusion: the available evidence demonstrates that conservation-oriented residential rate design, occupancy-based adjustments, verification or staff-review procedures, customer privacy, and practical administration have been successfully combined within documented utility practice.

For that reason, the report recommends that the Public Service Commission evaluate an optional adjustment to the initial residential water allocation based on verified household occupancy in future residential water rate proceedings involving New York's investor-owned water utilities. Such an evaluation would allow the Commission to determine, based upon evidence developed through its existing regulatory processes, whether implementation would further the public interest while preserving the conservation objectives that remain central to New York's water policy.

Appendix A

Principal New York Regulatory Proceedings Examined

Proceeding	Case	Primary Subject	Primary Chapters
Veolia Water New York	23-W-0111	Conservation-oriented residential rate plan; inclining block rates; conservation programs	1, 2, 4, 8, 9, 10
Liberty Utilities (New York Water)	23-W-0235	Threshold Analysis; conservation-oriented rate structure; Commission review	1, 3, 4, 8, 9

The proceedings listed above constitute the principal New York regulatory sources examined throughout this report. Additional governmental publications, Department of Public Service materials, conservation guidance, and comparative utility documents are cited where relevant to support particular chapters.

Appendix B

Comparable Utility Programs Reviewed

Utility	State	Administrative Topic	Primary Chapters
Irvine Ranch Water District (IRWD)	California	Budget-based allocations; proof of permanent residency; District-specified reconfirmation	6, 7
Las Virgenes Municipal Water District (LVMWD)	California	Water-budget adjustments based on permanent-resident count; District review	6, 7
City of Boulder	Colorado	Household-size adjustments; audit and annual renewal	6, 7

These utilities are presented solely as comparative examples illustrating documented administrative practices. They are not presented as legal precedent for New York, but as evidence that occupancy-based adjustments with utility review and, in some programs, documentary verification can be incorporated into conservation-oriented residential rate structures while preserving conservation objectives. Their inclusion demonstrates documented administrative feasibility rather than a recommendation that New York adopt any specific program design.

Appendix C

Principal Government and Industry References

Organization	Principal Documents Used
New York State Public Service Commission	Veolia Order and Joint Proposal (23-W-0111); Liberty Order and Joint Proposal (23-W-0235)
New York State Department of Environmental Conservation	“Water Use & Conservation”; “Water Conservation Requirements”; Water Conservation Manual
United States Environmental Protection Agency	WaterSense: “How We Use Water”; “Statistics and Facts”; “Understanding Your Water Bill”
American Water Works Association	Water Conservation Programs—A Planning Manual (Manual M52)
Water Research Foundation	Residential End Uses of Water, Version 2: Executive Report

References

New York State Public Service Commission

New York State Public Service Commission. Order Adopting Joint Proposal as Modified and Establishing Rate Plan, Case 23-W-0111 (issued May 16, 2024).

New York State Public Service Commission. Joint Proposal, Case 23-W-0111 (filed January 4, 2024).

New York State Public Service Commission. Order Adopting Terms of Joint Proposal and Establishing Rate Plan, Case 23-W-0235 (issued August 15, 2024).

New York State Public Service Commission. Joint Proposal and Appendices, Case 23-W-0235 (filed May 31, 2024).

New York State Department of Public Service

New York State Department of Public Service. Staff statements, interrogatories, testimony, and related materials filed in Cases 23-W-0111 and 23-W-0235.

New York State Department of Environmental Conservation

New York State Department of Environmental Conservation. “Water Use & Conservation.”

New York State Department of Environmental Conservation. “Water Conservation Requirements.”

New York State Department of Environmental Conservation. A Survey of Methods for Implementing and Documenting Water Conservation in New York (Water Conservation Manual).

United States Environmental Protection Agency

United States Environmental Protection Agency, WaterSense. “How We Use Water.”

United States Environmental Protection Agency, WaterSense. “Statistics and Facts.”

United States Environmental Protection Agency, WaterSense. “Understanding Your Water Bill.”

United States Environmental Protection Agency, WaterSense. “Start Saving.”

American Water Works Association

American Water Works Association. Water Conservation Programs—A Planning Manual (Manual M52), 2nd ed. (2017).

American Water Works Association. Water Conservation for Small- and Medium-Sized Utilities.

Water Research Foundation

DeOreo, William B., et al. Residential End Uses of Water, Version 2: Executive Report. Water Research Foundation, Project 4309, Report 4309A, 2016.

Utility Publications

Liberty Utilities (New York Water) Corp.

Threshold Analysis Study 2024, filed in Case 23-W-0235 on December 27, 2024.

Joint Proposal supporting materials, Case 23-W-0235.

Tariff provisions.

Customer conservation materials.

Veolia Water New York

Joint Proposal, § XVIII, “Conservation & Efficiency Program,” Case 23-W-0111 (dated January 4, 2024).

Tariff provisions.

Customer education publications.

Rate case filings.

Irvine Ranch Water District

“Residential Water Rates.”

“Request A Water Variance.”

Rules and Regulations, §§ 12.7.1–12.7.2 (adopted June 9, 2025).

“Privacy Policy.”

Las Virgenes Municipal Water District

“Water Budgets.”

“Water Budget Adjustment Request.”

“Privacy Policy.”

City of Boulder

City Manager Rule 11-1-3.A(21), “Water Budget Policy Overview and Review Process,” Attachment A.

“Water Budget Adjustment Application.”

“Privacy Policy.”

Industry and Government Publications

Additional government publications, industry guidance, and utility documents cited throughout the report in support of residential water conservation, conservation-oriented rate design, household occupancy, administrative feasibility, and customer privacy.