Water Reuse Rates and Charges
2000 and 2007 Survey Results

American Water Works Association

AWWA Water Reuse Committee
(June 2008)

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2000 & 2007 Survey Results

Prepared by HDR Engineering, Inc. (HDR)
for the American Water Works Association (AWWA)
Water Reuse Committee

In cooperation with the Water Environment Federation (WEF)
Water Reuse Committee

AWWA wishes to thank the members of the AWWA Water Reuse Committee and
HDR Engineering, Inc. for their contribution to this report. In addition, AWWA
recognizes CH2M-Hill, Inc. for its efforts during the design and conduct of the
2003 survey. The committee members and others that contributed to this
publication are listed below:

Guy W. Carpenter, P.E.
Gary K. Grinnell, P.E.
Christopher M. Haney, P.E.
Gary A. Jacobi, E.I.
Shawn W. Koorn
Dina M. O’Reilly
Cil Pierce
Craig Riley
Alan Rimer
Kenneth A. Thompson
Don Vandertulip
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Introduction

Within the past few decades, planning for future potable water supplies has become an increasing concern for utilities nationwide. With the growth of communities and rapidly shrinking supplies of potable water, utilities are looking to alternative sources of water to adequately plan for their future.

Water reuse has become a method many utilities are employing to manage treated wastewater and provide a new water supply to supplement potable water for non-potable, and in some cases, potable purposes. In many areas of the United States, reclaimed water has become a key resource to provide sustainable water supplies to meet these future planning requirements. However, the pricing and recovery of costs associated with reclaimed water has been an obstacle for many utilities.

Importance of Reclaimed Water

Growing communities, increasing regulations, and demands for limited water resources are just a few of the issues facing water and wastewater utilities today. These and other issues are forcing more utilities to look to alternative solutions to increase their supplies of water for customers. Reclaimed water is generally more reliable than other water resources because it is produced in predictable quantities even during periods of drought or other water supply reduction.

Industry Trends

As water resources have become scarcer with increased demands on limited supplies, the water industry has employed methods to encourage the efficient use of water. Generally, these methods included some form of conservation programs and pricing. Conservation is a trend seen to not only help reduce the amount of potable water needed by a utility, but also shows that the utility and its customers are good stewards of the environment. Many utilities are implementing extensive residential and commercial conservation programs that include the use of reclaimed water as a piece of the overall program to reduce the demand for potable water. However, conservation is only one avenue to reducing potable water uses. With demand projected to outpace potable water resources in the future, new sources must be developed and a shift toward providing appropriate quality of water for appropriate end uses needs to be made.

In the past several years, an emphasis has been placed on water reuse and its benefits. As technology has changed, reuse has become more socially acceptable and affordable. Therefore, more utilities are looking to reclaimed water as a source to satisfy demands, particularly demands that do not require potable-quality water.

Changes in Regulations

The National Pollution Discharge Elimination System (NPDES) permits have strict requirements for the level of treatment of reclaimed water and where that water
can then be used. Most states also have their own levels of regulations regarding the application of reclaimed water. There is no nationwide regulation or standard for water reuse.

However, most state agencies and local utilities nationwide are increasing the level of regulations related to treatment, disposal and reuse of wastewater. With limits to the amount of potable water and water resources available to utilities, regulators are passing increasingly stricter standards related to nutrients, temperature, pathogens, and many other parameters. Increased monitoring and reporting of both influent and effluent wastewater are now required. Current transport, exposure, and risk assessment research on a myriad of micro-constituents will definitely shape future regulations related to the reuse or discharge of wastewater.

These regulations are directly impacting the wastewater treatment utilities by increasing the amount and type of wastewater treatment, and in some cases, requiring the diversion of treated wastewater discharge. Facilities need to be upgraded in order to meet these stricter standards. With the upgraded facilities, more utilities are producing higher quality of reclaimed water. This reclaimed water is then used to supplement their potable water supplies for non-potable uses and assist in the use of a resource in order to meet discharge limitations.

Public Education

The primary obstacle to overcoming the use of reclaimed water is the public’s general feelings regarding reclaimed wastewater. Public education has become a key factor in most utilities’ use of reclaimed water for crop and landscape irrigation, construction water, toilet flushing, etc. Many utilities have added a public education element to their reclaimed water program, which has added to the overall cost of the programs.

Background of Technical Memorandum

In the late 1990s, the ability to finance reclaimed water, upgrade capital projects, and cover annual operations and maintenance (O&M) costs were the biggest perceived obstacles to the use of reclaimed water. Agencies were looking for answers on how to fund these projects as the use of reclaimed water was becoming more urgent for the supplementation of dwindling potable water supplies and to meet more stringent discharge regulations.

In 1999/2000, the American Water Works Association (AWWA) and Water Environment Federation (WEF) joined forces to survey 500 water reuse utilities throughout the United States. This survey included questions covering the reclaimed water utility’s organization, reclaimed water system, uses of the resource, and costs and rates associated with reclaimed water production and sale. The purpose of the survey was to create a national database on the different approaches the utilities used to finance their water reclamation programs and how rates were being set.

RW Beck was hired to facilitate this survey and manage the database created from
the responses. CH2M-HILL was retained to analyze the results and gather the information into a technical memorandum. Of the 500 utilities who received the electronic survey, there was a response rate of about 20 percent, with 109 utilities giving full or partial responses.

In 2003 a draft technical memorandum of the survey results was provided for review. Due to unforeseen circumstances, the technical memorandum was not completed. HDR was enlisted in late 2006 by the Water Reuse Committee to complete the original technical memorandum and include any updated, utility-specific information regarding the use and costs of reclaimed water. Twenty-three key questions from the original survey were chosen for updating from the original survey participants. Of the original 109 survey respondents, 89 were contacted for follow-up. These utilities were chosen because they answered a majority of the chosen questions. Of those 89 utilities contacted, roughly 30 percent responded to the follow-up survey.

In addition to summarizing the survey results, this paper looks at some of the necessary steps utilities should undertake when beginning, or continuing, a reclaimed water program including financing, cost allocation, rates and charges.

**General Survey Results and Analysis**

Responses were received from ten states, with approximately 48 percent from California and 16 percent from Florida. The states of Arizona, Colorado, Georgia, Hawaii, New Mexico, Nevada, Texas, and Washington each represented between two and ten percent of the total.

The first differentiation made among utilities was customer type. In this case, it was determined how many respondents served retail, wholesale, or both types of customers. This is an important point as historically, reclaimed water has been used for specific purposes (i.e., golf courses, industrial, etc.) and on a wholesale basis. The majority of survey respondents served retail customers. Figure 1 shows the breakdown among wholesale, retail or both types of reclaimed water systems.

As one would expect, the uses of reclaimed water varied greatly from utility to utility. However, golf course irrigation was identified as one of the main uses of reclaimed water for the utilities’ customers. Other uses of reclaimed water were for park/landscape irrigation, construction activities or power plant/industrial cooling processes. Some utilities also stated they use reclaimed water for fire protection. It is interesting to note that the uses of reclaimed water are primarily for outdoor use as a replacement for potable water.
The next differentiation was to determine what type of service was being provided. That is, water, wastewater, or both. In most cases, this would drive the issue of how the utility would move toward reclaimed water, either to purchase or produce. As shown in Figure 2, the majority, 55 percent, of respondents have both water and wastewater systems.

When reviewing the information, most utilities, 84 percent, stated they produce their own reclaimed water, while a small percentage purchase their reclaimed water. This could be the result of a majority of the respondents being both water and wastewater producers and the need for reclaimed water being driven in part to meet discharge requirements, while providing a non-
potable water resource. Of the 109 participating utilities who responded to the initial survey, 71 percent are public or municipal utilities. Federal government agencies, at one percent were the smallest section of participants, with special districts totaling 12 percent. The remaining utilities, between two and six percent, were private, other municipal, county, regional or state utilities, as shown in Figure 3.

![Figure 3. Organization Description]

Developing Reclaimed Water Systems

There could be many reasons for a utility to move toward reclaimed water use. However, when asked what factors drive the utility’s reclaimed water program, answers were fairly evenly split among stringent regulatory concerns, economic factors, conservation, and lack of potable water supplies. The economic factors were broken down into a combination of issues including generating revenues through reclaimed water sales and reducing the cost of discharging treated water. Environmental factors also play a small part in the decision of some utilities, which tied into the conservation decisions. Creating a sustainable water source and improving water quality were additional factors in promoting a reclaimed water program.

Program Funding, Rates and Charges

Funding of Reclaimed Water Programs

Improving wastewater treatment facilities to create reclaimed water suitable for use on crop or landscape irrigation, wetlands, discharging to public waters, and augmenting natural systems (surface water and groundwater), etc. is costly. These improvements usually consist of upgrades to existing treatment plants, or construction of satellite
reclamation facilities to produce reclaimed water which can then be permitted for non-potable uses. Funding for these projects can include a variety of options. Generally speaking, the utility is responsible for funding the development of reclaimed water. The following section discusses general options related to funding reclaimed water facilities.

**Initial Implementation Funding**

One possible option for funding a reclaimed water program is from large customer contributions. If a utility has identified large customers who will benefit from the majority of the reclaimed water produced, there is the possibility of those customers financing a large portion of the project.

If the utility does not have large customers willing to finance, other funding sources are available. Many of these options include debt instruments utilized to fund capital costs to minimize the impact to existing and new customers. This is accomplished by spreading the costs out over multiple years through an annual debt service payment. Two debt options typically used are a revenue bond and a low interest loan. Grants are a third option available to some utilities as a funding resource.

- **Revenue Bond:** A revenue bond is supported by the income generated from monthly utility charges. A utility can issue revenue bonds at its discretion subject to its internal policies and financial standing, as determined by the bond council. The bond council typically bases its opinion on the utility’s ability to fund system operation and maintenance costs plus the annual principal and interest. In addition, the utility income must meet coverage requirements at a minimum of 1.25 or as generally stated in the policies of the utility or the bonding authorities or covenants.

- **Low Interest Loan:** Most states offer low interest loans to utilities for various capital projects. Depending on the type of loan, the capital projects must be identified in the comprehensive or adopted capital plans and may require an approved engineering report. Low interest loans may also have a matching requirement of 2-50 percent. The project must be deemed eligible according to rating criteria by the state funding authority to take advantage of this financing option. Some programs may be eligible for partial grant funding, depending on water quality, demographic and economic considerations. Programs vary from state to state.

- **Grants:** Some programs may be eligible for partial grant funding, depending on water quality, demographic and economic considerations. Grant programs vary state to state.

**Cost Recovery**

Agencies were then asked about the operating costs they anticipate recovering on an annual basis. In 2000, most utilities stated they either recover less than 25 percent of their operating costs or they did not know how much they were recovering. The low percentage of operating costs recovered can directly relate to the high cost of treating reclaimed water. Therefore, most utilities do not want to pass the entire costs to the reclaimed water customers as this can be prohibitive to the use of reclaimed water. Figure 4 shows the percentage of annual operating costs utilities stated they recovered through their reclaimed water rates.
As shown in Figure 5 for 2007, more utilities are now tracking how much of their annual operating costs are being recovered through reclaimed water rates. Although they are now tracking this information, the majority of utilities are still recovering less than 25 percent of their annual operating costs.

![Percentage of Annual Operating Costs Recovered](chart1.png)

**Figure 4. Percentage of Annual Operating Costs Recovered Through Reclaimed Water Rates 2000.**

It is interesting to note that after seven years of utilizing reclaimed water, the majority of the utilities still only collect a quarter of the costs related to treating and distributing reclaimed water. This can be for several reasons, the most prevalent being the psychological impact of using treated wastewater, lack of adequate distribution facilities, and the basis for setting the reclaimed water rates (percentage of the potable rate). Several of these factors are discussed further in this paper.

![Percentage of Annual Operating Costs Recovered](chart2.png)

**Figure 5. Percentage of Annual Operating Costs Recovered Through Reclaimed Water Rates 2007.**
Revenue Recovery

Generally speaking, if reclaimed water rates were set at the cost of service, they would be higher than potable water rates due to the increased treatment required as well as the cost of a secondary distribution system. Obviously, this would not encourage the use of reclaimed water by a utility’s customers. Rates are generally set at a much lower rate than the full cost of service; therefore costs will not usually be recovered through reclaimed water rates. Ultimately, the cost difference will have to be generated from some other source, whether through the potable water rate, wastewater rate, municipal or regional subsidy, state or federal subsidy, etc.

To encourage reclaimed water use, many utilities provide some level of technical support or assistance to their customers. This support may come in the form of assistance with installation and conversion of equipment, financial assistance with conversion to a reclaimed water system, or ongoing rate assistance.

Revenue Recovery from Other Sources

Customers receiving reclaimed water do not receive a greater benefit from reclaimed water than they would by receiving potable water unless the non-implementation of reclaimed water use will result in potable water restrictions through regulations, conservation, drought, etc. As stated previously, setting reclaimed water rates at the full cost of service would not be financially feasible for these customers. Therefore, other revenue sources must be pursued to cover costs of the system and allow for an incentive for customers to utilize reclaimed water. Figure 6 shows where additional revenues are received to meet the operating costs for reclaimed water.

![Revenue to Meet Operating Costs](image)

Figure 6. Revenue Sources to Meet Operating Costs 2000.

Of the 43 percent who answered “other” to this question, 83 percent stated the revenue to meet their operating costs is built into the potable, sanitary or general system costs. As shown, the majority of the revenue to meet operating costs came from the potable and sanitary customers in
the 2000 survey. The balance of systems indicated municipal, regional, state or federal subsidies are used.

As seen in Figure 8, the majority of the 2007 respondents stated the additional revenue to meet operating costs comes from wastewater customers as opposed to potable water customers.

Many utilities in the original survey either plan to recover a portion or none of the operating or capital costs for the reclaimed water program.
Two questions that can be asked when determining what other revenue sources to use are: First, “who benefits?” and second, “what is practical?” It is important to assess the relative benefits, both direct and indirect, to the utilities’ water and wastewater customers. At the same time, the practicality of any cost-recovery approach must be considered. The following discussion outlines several options for recovering the full costs of the reclaimed water distribution system, and provides a conceptual discussion of the differing benefits and practicality of these options.

Categories of Benefit

Different types of considerations can be used in determining revenue sources to cover costs for development and operation of the reclaimed water distribution systems. Reclaimed water will:

- Benefit a utility’s existing water customers by deferring, reducing, or eliminating the need to develop new sources of supply in the future. With this option, existing customers may pay for the reclaimed water system through their water bills. This could be based on their consumption (consumption-based rate) or a fixed meter charge.

- Benefit a utility’s existing wastewater customers if no or fewer upgrades are needed for the system to meet regulatory requirements because of reuse standards. This can defer, reduce or eliminate the need to develop additional treatment capacity. With this option, existing customers may pay for the reclaimed water system through their wastewater bills. Wastewater customers will also benefit if increasingly stringent discharge limits require treatment upgrades, and the associated costs may be avoided by making use of the treated water.

- Benefit a utility’s new water customers only. This is because new customers need new sources of supply while existing customers have already financed development of the supply that is adequate to meet current needs. With this option, the utility’s new potable water customers would pay for the reclaimed water system through the use of system development charges.

These options are not mutually exclusive, but can be combined based on the proportion of benefits received in each category or benefits to all customers either water or wastewater.

Development of Rates and Charges

As the practice of water reuse became more prevalent, many utilities were looking for examples of how other utilities charged for this source. This was important as many utilities did not know how to recover the full cost or even develop a rate for reclaimed water. As shown in the following figures, various factors weighed in on the development of the rates. A quarter of the utilities set rates to promote the use of reclaimed water. As stated previously, this more than likely means they are not recovering the full amount of their operating costs.

For some utilities, especially those with constrained supply or treatment, promoting the use of reclaimed water is more important to the utility than recovering the full cost of reclaimed water. Other utilities determined their rates based on market analysis (nine percent), cost of service estimate (14 percent), or as a percentage of potable water rates (19 percent).
percent). This method of setting rates at a percentage of potable water rates is more commonly used and will be discussed in more detail later. Those who answered “to promote use” also have set the rate at some percentage of the potable water rate. Of the utilities who answered “other” nearly half, 49 percent did not charge for their reclaimed water.

Nearly half, or 42 percent, of 2007 respondents set their reclaimed water rates to promote the use of reclaimed water, as shown in Figure 11. Of those answering “other”, there were a variety of responses. Some have not yet set their rates. Some have set the reclaimed water rate as the cost of service minus a certain percentage to keep rates below the potable water rate. Rates may also vary depending on whether a developer or utility paid for the original connection. The rate may also be
set at the annual board of directors’ budget meeting or may be a market-based rate, for example, what utility X is charging for their reclaimed water.

![Figure 11. Development of Reclaimed Water Rates 2007.](image)

Given the cost of providing a reclaimed water source, it is generally a policy decision to determine the appropriate cost recovery. Most market research indicates the maximum rate at which to set reclaimed water rates is the potable water rate. Conversely, the minimum could be zero. Most utilities, however, set reclaimed water rates based on a market analysis or what customers are willing to pay. As seen in Figure 12, in the original survey, rates for reclaimed water vary greatly from 20 percent all the way to 100 percent of the potable water rate. This was essentially unchanged for respondents to the 2007 survey, with the median rate being 80 percent of the potable water rate.

When utilities look at their policies for setting reclaimed water rates, most agree the cost should be less than the potable water rate. The average seen today for reclaimed water rates ranges between 50 and 100 percent of the potable water rate. The reasoning behind charging less than the potable water rate is to encourage more use of reclaimed water; therefore keeping the costs of potable water down, yet still ensuring the reclaimed water system pays a portion of its share of the expenses to create reclaimed water.
There are various “generally accepted” rate structures which can be used to establish or develop rates. The initial starting point in considering a rate structure is the relationship between fixed costs and variable costs. Fixed costs are generally collected as a fixed charge on a monthly basis (e.g., $5.00 per month/meter). This charge may be called by various names (e.g., customer charge, meter charge, readiness to serve charge, etc.), but in all cases, it is intended to collect those fixed costs the utility incurs, regardless of the customer’s level of consumption. The most basic form of a fixed customer charge is a flat monthly fixed cost. Not all utilities may charge a fixed charge during the non-irrigation season (winter) when reclaimed water is not generally used, but may employ a fixed charge during the irrigation season (summer). Utilities may also charge solely on a volumetric rate.

Different approaches can be used to collect fixed charges; the same can be said for variable or volumetric charges. Variable charges are generally based upon metered consumption and charged on a $/unit cost. The unit of measurement may vary (e.g. gallons, thousands of gallons, acre-feet, etc.). The unit of measurement used for the rate design is not a critical element in the development of the rates. This is because the charge per unit is simply adjusted to reflect the units of measurement being used. In other words, if you are charging $2.00 per 1,000 gallons, and wanted to charge on a per gallon basis, the rate would be 0.2¢/gallon. It is the structure of the variable charges where numerous options exist.

There are three basic rate structures for variable charges; a uniform charge, a declining block charge and an inclining block charge. Figure 13 provides an overview of each of these variable charge rate structures.
As can be seen from the figure, the basic philosophy of each of these variable charge rate structures varies significantly. Under a uniform rate structure, the cost per unit does not change with consumption. From the perspective of customer understanding and rate administration/billing, this is a simple and straightforward approach. In contrast, the declining block rate structure is a bit more complex. The number of blocks (e.g., three stepped blocks) and size of the blocks (e.g., 0 – 10 hundred cubic feet (CCF)) may vary. However, the number of blocks should be reasonable (i.e. two -four blocks) for reasons of simplicity and administration. Declining block rates may imply that there are certain economies of scale with additional consumption, and not necessarily a “volume discount.” Depending upon the utility, this may or may not be a true statement. Finally, an inclining block rate structure attempts to send a price signal to consumers that their consumption costs more, as more water is consumed. This may or may not be the proper price signal regarding the utility’s water resource costs. As with the declining block rate structure, the number and size of each block may vary, but should be reasonable for purposes of customer understanding and rate administration.

The rate structure concepts noted above may be combined and used to form various rate design options that meet the utility’s needs. However, at the same time, the utility must understand its overall goals and objectives in establishing rates. For example, in the Southwest, where even reclaimed water resources are limited, additional consumption is discouraged; while in the Pacific Northwest, there may actually be encouragement for the use of reclaimed water in order to reduce wastewater discharge and rates should be set accordingly.
Rate Design Criteria and Considerations

Prudent rate administration dictates that several criteria must be considered in setting rates. Some of these rate design criteria are listed below:

- Rates that are easy to for customers to understand
- Rates that are easy for the utility to administer
- Consideration of the customer’s ability to pay
- Continuity, over time, of the rate-making philosophy
- Policy considerations (encourage conservation, economic development, etc.)
- Provide revenue stability from month to month and year to year
- Promote efficient use of the resource
- Equitable and non-discriminating (cost-based)

Many contemporary rate economists and regulatory utilities feel the last consideration, cost-based rates or some form thereof should be of paramount importance and provide the primary guidance to utilities on rate structure and policy. As discussed previously, the full cost of reclaimed water may not be collected. Instead, the utility must determine its overall goals and objectives and develop a rate structure that best meets those needs.

These goals may be approached through both rate level and structure. When developing the proposed rate designs, all the listed criteria should be taken into consideration. However, it should be noted that it is difficult, if not impossible, to design a rate that meets all the goals and objectives listed here. For example, it may be difficult to design a reclaimed water rate that is cost-based yet promotes use of reclaimed water. In designing rates, there are always trade-offs between the various goals and objectives.

Rate Design

Rate design establishes the means for reclaimed water revenues to be collected. Rate design must also balance a number of conflicting goals such as equity, ease of administration and economic incentive. This applies only to the rates charged for reclaimed water delivered to the customers receiving reclaimed water. The most common rate structures seen in use at this time are the following:

- Flat monthly charge
- Commodity charge (per CCF, gallon, etc.)
- Monthly base charge plus commodity charge

The commodity charge relates to the variable charge per unit of consumption. The recovered costs are spread over all units to determine the average rate. A commodity charge can be charged as a uniform rate, a declining block or an inclining block. A uniform rate is fairly common for reclaimed water systems in their infancy. It is a means of assessing the charge to begin to get the concept in place while keeping the rate simple to understand and implement. A declining block will typically be used for more mature systems or where systems are in place to meet discharge requirements or provide an economic incentive to consume water. Inclining block rates are used to send a proper price signal and will typically be found in more mature systems whose customer base may be more varied or in more arid climates, where water resources are scarce. This rate
structure is typically more complicated to implement. As the utility matures and the goals, objectives and customers are more defined, alternative rate structures such as seasonal, may become more applicable.

The majority of the 2000 respondents stated they have a uniform rate structure for their reclaimed water customers, while only a small percentage have inclining rate structures. A few respondents have specific customer rates through contracts. This result was relatively unchanged for the 2007 respondents.

As a utility’s reclaimed water system develops, the utility may want to pursue reclaimed water system development charges as an additional revenue source. System development charges for new customers connecting to the systems (potable and/or reclaimed) are a means of collecting revenue to help offset the capital needs of the system. Care must be taken not to charge the user more than they would be charged under one potable connection. At the time of the 2000 survey, more than 70 percent of the utilities did not include a system development charge for new customers connecting to the system. System development charges for the 26 utilities who did charge for this ranged from $225 up to as much as $43,000 depending on the size of the meter. The majority of the 2007 respondents still do not charge a system development charge to their new customers.

An alternative method of collecting the appropriate revenue from reclaimed water customers is through a special contract. Contracts are useful in those situations where the existing rates of the utility do not capture the benefit derived by the customer or the special usage, service or facility requirements of the customer. Care should be taken to limit the use of special contracts due to the administrative burden of monitoring the contract terms and conditions throughout the duration of the contract. The graphic below shows the number of reclaimed water utilities who used contracts or ordinances to administer reclaimed water usage for their customers in 2000.
The 23 percent of “Other” from the Figure 14 was further broken down as shown in Figure 15. The majority of these utilities do not charge for their reclaimed water usage. The next largest category for rate charges is owner-decided at 21 percent. Very little, or eight percent, base their rates on the cost of system infrastructure.

In 2007, the majority, 70 percent, set reclaimed water rates via ordinance versus the 44 percent in 2000. As more utilities are beginning to charge for reclaimed water, they are realizing the benefit of reclaimed water revenue and are passing ordinances to govern rate structures, which also generally ensure ease of administration.
Survey Billing Results

When it comes to billing customers, policies varied for the initial survey respondents. Some customers, 38 percent, are billed on usage, while six percent were billed on meter size. The majority of the respondents answered “Other” types of pricing to this question. When asked to identify the other type of billing they use to charge their customers, there was a wide variety of responses. Figure 17 shows the breakdown of the other types of billing charged to the reclaimed water customers. Billing information did not change dramatically between 2000 and 2007. Figure 18 shows the “other” types of pricing for 2007 survey respondents.

![Figure 17. Varvino Types of Rate Policies 2000.]

![Figure 18. "Other" Types of Rate Policies 2007.]

Price Variance Type

- **Usage type** 37%
- **Contract with customer** 18%
- **At pressure or non pressure** 3%
- **Agency not charged** 6%
- **Other** 56%

- **Price based on product costs** 18%
- **Bulk users pay less** 6%
- **Environmental benefits** 3%
- **Unknown** 3%

"Other" Types of Customer Billing

- **Price based on product costs** 32%
- **Price based on product cost** 8%
- **At pressure or non pressure** 5%
- **Contract with customer** 31%
- **Some agencies not charged** 11%
- **Unknown** 5%
- **Bulk users pay less** 11%
- **Customer pays less as a result of environmental benefits** 9%
Billing Cycles

When creating billing cycles for reclaimed water customers, utilities also vary greatly. Nearly half of all utilities bill their customers on a monthly billing cycle, while a significant number of others do not charge for their reclaimed water. Several utilities had not determined how they would bill their customers or they were not yet operational and did not have any reclaimed water customers at the time of the original survey. Figure 19 shows the breakdown of the
reclaimed water billing cycles. Similar to the billing structures mentioned above, there was no change in the overall billing cycles reported between the 2000 and 2007 surveys.

![Reclaimed Water Billing Cycle](image)

*Figure 19. Reclaimed Water Billing Cycle 2000.*

There are still a few utilities that were not charging in 2000 and have not yet implemented any kind of billing or rate structures for their reclaimed water systems. Most of these utilities anticipate setting up some sort of billing system in the near future. One utility, in the original survey was conducting a study to determine to cost to upgrade to reclaimed water and anticipated beginning the process in the near future. When asked the status, they said the cost to upgrade the system was deemed prohibitive to the board and therefore, they have not upgraded.

**Conclusion**

While it is important to understand the local water market, and it is recommended that utilities develop reclaimed water utilities from a business planning perspective, the pricing of reclaimed water is ultimately a public policy decision that considers more than straight line economics.

As can be seen from this report, the uses of reclaimed water, financing, cost recovery policies, rate design, and administration vary greatly throughout the country. The one thing these utilities agree on is the need for reclaimed water. Reclaimed water is a key to successfully planning future water resources, or as one respondent said, “It just makes sense”.

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