



# **U.S. Environmental Protection Agency**

## **Water Conservation Plan Guidelines**

# **PART 1**

# **INFORMATION FOR STATES**

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# 1. BACKGROUND AND INTRODUCTION

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## Introduction

The purpose of this part of the document is to introduce the Guidelines and provide information to the states about their nature and possible use. The 1996 Amendments to the Safe Drinking Water Act recognized the potential value of water conservation in infrastructure funding programs such as the Drinking Water State Revolving Fund (SRF). When water systems need to build facilities, the benefits of water conservation are greatly enhanced. Properly planned and implemented, water conservation programs can defer, reduce, or eliminate the need for not only water supply facilities but wastewater facilities, as well. Significant capital cost savings can result, which in turn translates to smaller loan amounts for SRF Programs. This frees up money in limited loan funds to finance more projects to help achieve a state's compliance and public health goals.

*The SDWA requires the U.S. EPA to publish water conservation plan guidelines that states may use in conjunction with their SRF programs. The law leaves implementation decisions up to the states.*

While the capital cost savings effects of water conservation are compelling enough, the potential benefits do not end there and also apply to customers. Water conservation extends water supplies, of course, but can also reduce utility operating costs. Energy use by customers and utilities can be reduced, which saves money and reduces greenhouse gas emissions. Reducing water withdrawals also helps improve water quality, maintain ecosystems, and protect water resources.

## The SDWA Provision

The SDWA states:

Sec. 1455. (a) Guidelines.--Not later than 2 years after the date of enactment of the Safe Drinking Water Act Amendments of 1996, the Administrator shall publish in the Federal Register guidelines for water conservation plans for public water systems serving fewer than 3,300 persons, public water systems serving between 3,300 and 10,000 persons, and public water systems serving more than 10,000 persons, taking into consideration such factors as water availability and climate.

(b) Loans or Grants.--Within 1 year after publication of the guidelines under subsection (a), a State exercising primary enforcement responsibility for public water systems may require a public water system, as a condition of receiving a loan or grant from a State loan fund under section 1452, to submit with its application for such loan or grant a water conservation plan consistent with such guidelines.

This provision suggests parameters for water conservation policy in terms of the development of federal guidelines, the potential use of conservation guidelines for states in connection with the SRF, and the primacy role of the states in program implementation.

## What is Required

The SDWA requires the U.S. EPA to publish conservation plan guidelines within two years of the Act's passage. The guidelines must take into account system size, water availability, and climate. The SDWA provides that states may require public water systems applying for SRF loans to submit a conservation plan consistent with the guidelines; there are no statutory mandates for states or municipalities in this section of the SDWA. The provision extends to SRF applicants and not to all water utilities under EPA and state primacy agency jurisdiction. Current federal SRF guidelines do not address the water conservation provision. States can choose to extend the use of the guidelines to systems other than SRF applicants.

### ***Benefits of Water Conservation***

*In order to meet the needs of existing and future populations and ensure that habitats and ecosystems are protected, the nation's water must be sustainable and renewable. Sound water resource management, which emphasizes careful, efficient use of water, is essential in order to achieve these objectives.*

*Efficient water use can have major environmental, public health, and economic benefits by helping to improve water quality, maintain aquatic ecosystems, and protect drinking water resources. As we face increasing risks to ecosystems and their biological integrity, the inextricable link between water quality and water quantity becomes more important. Water efficiency is one way of addressing water quality and quantity goals. The efficient use of water can also prevent pollution by reducing wastewater flows, recycling industrial process water, reclaiming wastewater, and using less energy.*

**Source: EPA Office of Water, *Statement of Principles on Efficient Water Use* (December 1992).**

## How States May Use These Guidelines

The SDWA makes clear that using the conservation guidelines is at the discretion of the states. The states may decide whether to use the guidelines at all, whether to use the guidelines in conjunction with their SRF programs, and whether or not to tailor the guidelines to specific state needs or goals. Use of these water conservation guidelines with the SRF will necessitate consultation and coordination with federal SRF guidelines. States might also need to formulate a formal procedure for adopting the guidelines, depending on existing statutes and regulations governing the SRF and water conservation. States also can adopt the guidelines for use in other state programs in accordance with the rules governing those programs. Tribes and Territories are not states for the purposes of the SRF but can use the Guidelines to implement programs under their own laws.

An important implementation issue for states, as well as water utilities, is to define needs and goals with respect to water conservation. State goals might be defined narrowly in terms of infrastructure funding policy, or more broadly in terms of long-term water resource

management. The guidelines could be used in a wide range of contexts. Each state's goals should serve to shape the contents of water system plans and programs for implementation. States are encouraged to work with stakeholders from different regions and perspectives in formulating state water conservation goals. Public meetings and other forums are useful for this purpose.

## State Policy Considerations

Water conservation must compete with other policy goals with respect to drinking water, and drinking water must compete with other community policy concerns. States should be cognizant of the implications of water conservation for environmental justice and other broad policy concerns. States should be aware of how implementation of conservation and other programs affect relevant groups and stakeholders in terms of the safety and affordability of drinking water.

Several specific areas of state policy are relevant to achieving water conservation goals. States are encouraged to closely examine state policies that might be at cross purposes with the goals of water conservation and impede beneficial conservation by community water systems.

The first area of concern is water rights. State systems for managing water rights and withdrawal permits sometimes provide that rights are lost to the extent less water is used, including where water is saved through conservation. The loss of water rights can be a significant disincentive to conserve and can undermine the achievement of the state's water efficiency goals. Recognizing that water users are less likely to conserve if future rights to use water are jeopardized, some state laws now authorize users to retain rights in the water they conserve (sometimes called the "conserved surplus") if it is put to beneficial use (for example, applied to other lands or uses, or transferred). In the absence of laws permitting such results, water systems will be forced to choose between complying with water conservation planning requirements (in which case the water right might be lost) and not complying (in which case SRF funding might be lost).

The second area of concern is economic regulatory policy. Typically regulated by state public utility commissions, investor-owned water utilities face potentially strong disincentives for conservation. The traditional model of utility regulation favors supply-side investment over demand-side investment in terms of cost recovery. Regulated utilities also might require approval to implement conservation measures, especially changes in rate design. Modern water conservation practices and these Guidelines recognize the salient role of pricing in water conservation, including the reconsideration of "promotional" rates that encourage use over conservation.

These Guidelines also recognize that conservation by customers can adversely affect the utility's financial condition because of the intrinsic relationship among sales, revenues, and profits. Regulators have tools to address these concerns if they have a clear policy basis for doing so. Clarification and coordination of state policies should include the role of the state

public utility commissions and the potential incentives for conservation that regulators could provide to investor-owned and other jurisdictional utilities.

## Coordinating State Programs

Use of these Guidelines by some states might constitute the first and only state policy related to conservation planning by water systems. Many states, however, already have water conservation policies and programs in place (as discussed in Section 7 of this Part). In either case, the states should adapt the Guidelines to their needs. For the states that already have conservation programs in place, the Guidelines (or specific parts) could be used to supplement existing efforts. Similarly, states might choose to use existing requirements in lieu of all or part of these Guidelines.

Regardless of the approach taken, coordinating state programs and policies will enhance effectiveness, while avoiding redundant or excessive requirements on water systems. The intent of these Guidelines is not to have water systems prepare, nor to have states review, more than one water conservation plan for a system.

State agencies should find ways to coordinate requirements, as well as plan review and approval processes, so that water systems can comply efficiently. Similarly, water systems that prepare conservation plans to meet Bureau of Reclamation requirements could be allowed by states to use those plans to satisfy SRF planning requirements. In other words, one water conservation plan could satisfy the requirements of state primacy, resource, and revolving fund agencies, as well as those of federal agencies.

Implementing a water conservation program can be a significant challenge, including a commitment of state staff and other resources. As discussed below, some funding for technical assistance to water systems may be available through the SRF. Resource needs vary with the level of detail expected in water conservation plans and the extent of review and approval by the states. Although the resource implications of implementing a conservation program may be significant, many states have found that the investment in water conservation policy and planning yields important benefits.

## Relationship to SRF

The SDWA refers specifically to the potential use of the Guidelines by the states in conjunction with the SRF. In 1997, EPA issued SRF program guidelines that do not address Section 1455 of the Act. However, several parts of the Act are relevant to the development and use of water conservation guidelines in relation to the SRF.

By suggesting that states may require SRF applicants to submit a conservation plan, Congress identified water conservation as a potential screening criterion for use in the SRF priority list process. The use of the SRF priority list process to encourage water conservation planning is at the discretion of the states.

At a state's option, water conservation plan preparation is eligible for SRF funding. States should consult current federal guidelines governing the use of SRF funds to determine whether conservation measures are eligible for funding.

These guidelines are intended to supplement, not supplant, state policies and programs in the area of water conservation, in furtherance of the broad objectives of the Safe Drinking Water Act and the SRF.

## 2. THE ROLE OF WATER CONSERVATION IN INFRASTRUCTURE PLANNING

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### Goals and Perspectives

These Guidelines are intended to help systems plan and implement effective and goal-oriented water conservation strategies. The Guidelines highlight the conservation goal of long-term reductions in capital facility costs. They provide a methodology for systems that are planning capital improvements (namely, SRF applicants) to incorporate conservation into their plans. The conservation plan can aid systems in making adjustments to planned capital improvements and demonstrating the system's commitment to efficient water supply operations.

*The Water Conservation Plan Guidelines emphasize goal-oriented planning which can help water systems improve their capacity to provide safe and reliable water service, as well as to eliminate, downsize, or delay infrastructure projects.*

Conservation planning can be beneficial to most water systems, not just those with an impending capital project. Even systems that consider supplies plentiful and facilities adequate find that conservation planning helps use existing resources more efficiently and save resources over the long term.

The planning approach reflected in these Guidelines is consistent with the idea of integrated resource planning (IRP), which emphasizes a balanced consideration of supply-management and demand-management options in meeting a water system's needs.<sup>1</sup> According to this perspective, conservation can help water systems avoid supply-side costs through cost-effective demand-side management strategies. Ideally, integrated planning combines the utility's best efforts in supply and demand management.

The benefits and costs associated with water conservation can be measured from a variety of perspectives: water suppliers, water customers, and society at large. For practical reasons, the Guidelines emphasize the perspective of the water supplier. Systems following the Advanced Guidelines are encouraged to examine conservation from other perspectives, including the broader societal viewpoint.

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<sup>1</sup> Janice A. Beecher, "Integrated Resource Planning Fundamentals." *Journal American Water Works Association* (June 1995); Gary Fiske, *Integrated Resource Planning: A Balanced Approach* (Denver, CO: American Water Works Association, 1996).

## Conservation and Infrastructure

Conservation may be viewed as a supplemental or even an alternative technology for meeting safe drinking water needs. Conservation should be implemented as part of a long-term strategy for providing safe and reliable drinking water.

Many water utilities already are experiencing the beneficial effects of efficiency through the standards in the Energy Policy Act of 1992 (see Appendix B).<sup>2</sup> Efficiency standards for plumbing fixtures and other conservation measures have long-lasting implications for water demand. Conservation planning can help water systems and the states recognize these effects and accelerate the pace of efficiency improvements.

One of the chief purposes of conservation is to avoid, postpone, or reduce capital costs associated with new facilities. Some hypothetical examples illustrate this point:

- The water source used by a small water utility becomes contaminated. Developing a new source would be very costly and withdrawal permits are backlogged; construction of a transmission main for purchasing wholesale water from a nearby community would be more affordable. However, available quantities of wholesale water are limited. A comprehensive conservation program could reduce water requirements to a level that would make the wholesale option feasible.
- A medium-sized water utility with a stable population base experiences “needle peaks” every summer, caused by intense lawn watering; average-day demand is well within the system’s capacity. The community’s older water treatment facility is being replaced with a state-of-the art facility. A public education campaign focusing on water-efficient landscaping principles, coupled with a seasonal water rate, facilitate cost-effective load management so that the new facility can be designed for optimal year-round performance.
- A large water system faces a series of capital projects throughout a regional service territory, including projects to remediate substantial water leakage that threatens both quality and quantity. Per-capita water use varies substantially throughout the area, as does the ability of consumers to afford their water bills. A comprehensive and integrated plan of supply and demand management, including conservation focused on the needs of low-income customers, allows the utility to adjust the timing and sizing of facilities and save both water and construction expenditures.
- A community’s water system enjoys a reasonable margin of capacity, but its wastewater treatment system is increasingly short on capacity and faces potential violations of discharge permits. Working together, the managers of the two

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<sup>2</sup> Amy Vickers, “The Energy Policy Act: Assessing its Impact on Utilities” *Journal American Water Works Association* (August 1993).

systems devise a long-term conservation strategy for the community that will help extend the useful life of both kinds of facilities and significantly downsize the capacity requirements of a planned wastewater treatment plant.

As the last scenario indicates, many communities may find that the potential to reduce wastewater treatment costs is among the most compelling reasons to implement water conservation. Wastewater collection and treatment, like water supply, is a rising-cost industry. Reductions in wastewater flows can save treatment costs as well as provide substantial environmental benefits in terms of reduced discharges.

Water and wastewater systems often are separately owned; even when these services are jointly provided the need for more coordinated infrastructure planning is great. Joint planning might provide opportunities for program partnerships and cost sharing. This model also can be extended to include regional partnerships and collaboration among water and wastewater utilities in order to achieve both economies of scale and efficiency. While emphasizing planning by water utilities, the Guidelines will clearly accommodate the consideration of wastewater issues and costs. Water utilities are encouraged to expand their analysis to include the wastewater perspective whenever feasible.

## Planning and Funding

A major component of the reauthorized SDWA is the provision of funding to improve the nation's aging water delivery infrastructure. Conservation activities may alter the timing and sizing of new water system facilities, including source-of-supply, transmission, treatment, and storage facilities. Conservation can save water resources and financial resources used to support the cost of the water delivery system. In no case should the planning and implementation of a water conservation program be allowed to delay a project needed immediately to achieve compliance or public health goals.

In keeping with the spirit of the law and to enhance the beneficial impact of conservation on infrastructure planning, the Guidelines are crafted specifically for use in conjunction with capital funding, including the SRF. The guidelines can help SRF decision-makers make critical determinations about the system from an efficiency and conservation perspective:

- Is the water system reasonably efficient, given system size, climate, water availability and other factors?
- Is the water system expected to become more efficient over time through the implementation of conservation measures?
- Is the public's investment in the water system sound given the system's level of commitment to water conservation?

Implementation of the conservation plan might help some systems reduce or delay costs associated with the supply facility project for which SRF funding is sought. In many cases, however, conservation savings will materialize over a longer planning horizon.

## Implementation Scenarios

These Guidelines allow several different state implementation scenarios. States may or may not establish conservation or planning requirements; states also may or may not require SRF applicants to provide a conservation plan. Also, state water conservation plan guidelines or planning requirements may or may not be consistent with EPA's Guidelines. The result of combining these possibilities is four different implementation scenarios.

In one scenario, a state requires conservation or planning and a conservation requirement also is included in the SRF application process. However, the SRF conservation requirement may be distinct from other requirements. In a second scenario, a state requires conservation or planning but does not require SRF applicants in particular to provide a conservation plan. Some states, for example, may believe that existing permitting, planning, or other requirements include sufficient conservation provisions. In fact, these processes may be more comprehensive than the SRF process, which covers only SRF applicants.

In a third scenario, a state does not have general planning or conservation requirements but includes conservation in the SRF application process. A state in this situation may want to use the SRF to institute a rudimentary conservation or efficiency policy. Finally, a fourth scenario suggests that a state may have neither a general conservation policy nor a specific conservation requirement in the SRF.

Another complexity is that implementation also will vary according to the correspondence, if any, between state conservation requirements (in general or as used with the SRF), and the EPA Guidelines. State conservation guidelines may be identical to the EPA Guidelines or largely different in content or scope. State guidelines may incorporate only parts of the EPA Guidelines. States may impose mandatory conservation requirements or use voluntary approaches. States may or may not use the size, climate, and water availability distinctions used in the EPA Guidelines or differentiate requirements based on these or other factors.

Many states already implement water conservation and planning requirements, although these requirements generally are implemented by state water resource agencies. Oversight of the SRF generally rests with the state drinking water primacy agencies, although some states also establish funding authorities to administer the SRF Program together with the primacy agency (an example is the Pennsylvania Infrastructure Investment Authority, or PENNVEST).

### 3. WATER CONSERVATION PLANNING CRITERIA

#### The Guidelines and System Size

Three sets of water conservation planning guidelines are provided—Basic, Intermediate, and Advanced—based generally on system size. The three size categories specified in the Act refer to the service population of the community water system, not to customer connections or the general population (as defined by a census region or other designation).

*The SDWA specifies three system-size categories for use in designing the guidelines, and also states that the guidelines should consider climate and water availability. These and other factors also can be used to design a framework for adapting the guidelines to state needs and purposes.*

A refinement of the SDWA-defined size categories was adopted for the purpose of developing the guidelines (see Table 1-1). The categories can be further refined according to the needs and capabilities of states and water systems. For example, states might find it appropriate to use different size categories or nonsize criteria to determine the appropriateness of the guidelines to some or all of their water systems.

**Table 1-1: System Size Categories and Applicable Guidelines**

<b>System Size Category (SDWA)</b>	<b>Applicable Guidelines</b>
Serves fewer than 3,300 people	<u>Basic Guidelines</u> or <u>Capacity-Development Approach</u>
Serves between 3,300 and 10,000 people	<u>Basic Guidelines</u> Up to 10,000 people served
Serves more than 10,000 people	<u>Intermediate Guidelines</u> Up to 100,000 people served
	<u>Advanced Guidelines</u> More than 100,000 people served

For many smaller systems (serving fewer than 3,300 people), preparing a water conservation plan is a considerable challenge. Although many small systems are capable of following the Basic Guidelines, an optional approach also is available for very small systems. The Capacity-Development Approach (see Section 5) integrates water conservation assistance (planning and implementation) with the state’s general capacity-development program.

Capacity development includes a variety of strategies to ensure the technical, managerial, and financial capacity of water systems. Many of the key indicators of water system capacity bear strong linkages to conservation and efficiency. States are encouraged to use a capacity-development approach to assist small systems in developing and implementing basic conservation measures in lieu of a plan requirement. States may use funds from the 10% capacity-development set-aside of their SRF allocation to provide systems with water conservation assistance if those systems have been identified in the state's capacity-development strategy.

The category of systems serving more than 10,000 persons is subdivided to better address the different needs and capabilities of medium-sized and larger systems. As discussed in the next section, the Basic, Intermediate, and Advanced Guidelines vary in terms of the conservation measures recommended for consideration in the planning process.

Any size cutoff used to prepare guidelines for planning will be arbitrary. The size categories are not meant to suggest precise distinctions or to preclude the application of the intermediate and advanced approaches to smaller systems. Many smaller systems implement a wide range of conservation measures, including measures not classified under the Basic Guidelines.

*These guidelines encourage all systems to consider the fullest range of planning methods and conservation measures that is practical.* States can encourage or require systems to go beyond the parameters of the Guidelines. Specifically, systems that fall into the Basic category can be asked to complete a plan under the Intermediate Guidelines; systems that fall into the Intermediate category can be asked to complete a plan under the Advanced Guidelines.

The Basic Guidelines provide water systems with simple tools for gathering information and planning.<sup>3</sup> The intention of the Guidelines is not to burden systems, especially very small ("micro") or resource-constrained systems, with unnecessary steps or details.<sup>4</sup> Rather, the Guidelines are intended to provide a straightforward means of planning and implementing generally accepted conservation practices.

The Intermediate and Advanced Guidelines introduce additional analytical tools and conservation measures to enhance water conservation planning efforts. The Intermediate approach builds substantially on the Basic approach, while also introducing additional planning concepts and conservation measures. The Advanced Guidelines take planning a step further, and depend on a sufficient level of planning and implementation resources. The Advanced Guidelines also recognize that larger utilities with more resources can develop models and methods that are appropriate to their specific needs.

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<sup>3</sup> The Guidelines also are generally consistent with the capacity-development provisions of the SDWA that apply to small water systems.

<sup>4</sup> States can consider exempting severely constrained systems from planning requirements. However, even small water systems can benefit from planning and implementing certain conservation measures.

## Climate, Water Availability and Other Factors

In addition to the consideration of system size, Section 1455 of the SDWA also requires the Guidelines to take into account climate and water availability. These variables have obvious relevance to water supply planning and conservation. Climate, particularly precipitation rates and temperature, affects *both* water supply and water demand. Water availability further addresses the capacity and condition of ground water and surface water supplies, which vary with climate as well as many other factors. These factors are not limited to natural or ecosystem circumstances; water availability might be affected by patterns of usage, pollution and other factors affecting water quality, and public policies concerning water management and regulation.

Climate and water availability vary *among* states and *within* states. States often are in a better position than the federal government to judge the extent to which climate and water availability should play a role in water conservation planning, and whether recommendations or requirements should vary within their jurisdictions. Thus, the Guidelines only suggest how to consider climate and water availability. States may adapt the Guidelines to their particular needs.

The Guidelines include one-page worksheets that systems can use to prepare a basic System Profile and an overview of System Conditions. The worksheet on Water System Conditions can be used to identify climate, water availability, and other relevant planning considerations. Systems also are encouraged to elaborate on other system characteristics, conditions, or factors relevant to water conservation planning.

## Criteria for Adapting the Guidelines

Table 1-2 provides a number of criteria that can be used to adapt the Guidelines to the specific needs of a state or particular systems within a state; these criteria correspond to the Worksheet on System Conditions in Section 2 of the Guidelines.

Criteria classified as “other factors” can be determined by the states. These criteria might include: planning capacity and experience of systems, past water conservation achievements, size of planned capital improvements, amount of requested SRF funding.

Within each area, several specific indicators are provided. These indicators can be used to identify water systems that have particular planning needs. The Worksheet provides only a general, qualitative method of assessment (for example, low-moderate-high). These values can be substituted with numeric values at each state’s discretion. *States are encouraged to develop quantified state-appropriate benchmarks for any of the indicators used.*

**Table 1-2: Potential Criteria for Adapting the Guidelines**

Conditions	Criteria suggesting the potential use of:			
	Basic Guidelines ⇨	Intermediate Guidelines ⇨	Advanced Guidelines	
<b>A CLIMATE AND WATER AVAILABILITY</b>				
A1	Average precipitation	High _____	Moderate _____	Low _____
A2	Average temperatures	Low _____	Moderate _____	High _____
A3	Critical supply areas	No _____	At risk _____	Yes _____
A4	Competing water uses	No _____	Possibly _____	Yes _____
A5	Environmental constraints	No _____	Possibly _____	Yes _____
A6	Quality/quantity concerns	No _____	Possibly _____	Yes _____
A7	Seasonal variations in climate	Low _____	Moderate _____	High _____
A8	Instream flow problems	Low _____	Moderate _____	High _____
A9	Shortage or emergency frequency	Low _____	Moderate _____	High _____
<b>B INFRASTRUCTURE CONDITIONS</b>				
B1	Age of the system	Newer _____	Middle _____	Older _____
B2	General condition of system	Good _____	Fair _____	Poor _____
B3	Water losses and leaks	Low _____	Moderate _____	High _____
B4	Unaccounted-for water	Low _____	Moderate _____	High _____
B5	Safe yield of supply exceeded	No _____	At risk _____	Yes _____
B6	Wastewater discharges exceeded	No _____	At risk _____	Yes _____
B7	Wastewater capacity exceeded	No _____	At risk _____	Yes _____
B8	Potential for recycling and reuse	Low _____	Moderate _____	High _____
B9	Improvement plans	Low _____	Moderate _____	High _____
B10	Anticipated investment	Low _____	Moderate _____	High _____
<b>C SYSTEM DEMOGRAPHICS</b>				
C1	Rate of population growth per year	Low _____	Moderate _____	High _____
C2	Rate of demand growth per year	Low _____	Moderate _____	High _____
C3	Rate of economic growth per year	Low _____	Moderate _____	High _____
C4	Per capita water use (by class)	Low _____	Moderate _____	High _____
C5	Ratio of peak to average demand	Low _____	Moderate _____	High _____
C6	Presence of large-volume users	Low _____	Moderate _____	High _____
<b>D OTHER FACTORS</b>				
D1	_____			
D2	_____			
D3	_____			

[a] Specific (quantified) benchmarks for these indicators may be provided by the state, as in the following example:

Example:

B1 Age of the system                      Newer < 5 years                      Middle 5 to 15 years                      Older >15 years

Planning requirements can be adjusted in accordance with system conditions. For example, some states might want to require all systems in a state-designated critical water-use area to prepare plans that follow the Intermediate Guidelines at a minimum. Some states might recommend the Basic Guidelines for all systems. Other states might choose to exempt some systems from filing plans, based on specified system conditions.

No attempt is made to “weight” various criteria in terms of their importance to the water conservation planning process. However, states might want to assign special weight or consideration to certain system conditions. For example, the following characteristics tend to suggest a strong rationale for conservation planning:

- State-designated critical water or stressed areas
- Frequent droughts, supply emergencies, or safe yield problems
- Excessive water leakages or losses
- Entrance into major construction program
- Rapid growth in water demand

States might want to develop and use a simple screening method, based on these or other criteria, to adjust planning requirements to system conditions (in addition to or instead of the system-size criterion). The screening process can be used to relax planning requirements for some systems, as well as to expand or limit requirements based on system conditions.

For example, a state might expand or relax planning requirements based on one or more of the following conditions: system size (particularly with respect to very small systems), amount of loan application, volume of water withdrawals, amount of nonaccount or accounted-for water, and the state’s determination of whether conservation will appreciably improve efficiency in relation to capital facility planning or funding. Some states might want to allow more time for small systems to complete their plans (as long as capital funding for priority projects is not jeopardized).

States can select screening criteria that they believe is most suited to their planning goals. States might consider state-wide water conditions in terms of whether it might be appropriate to exempt some systems from planning or to identify a minimal planning approach for all water systems.

## 4. GUIDELINES AND MEASURES

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### Planning Steps

The Intermediate and Advanced Guidelines suggest nine basic planning steps that apply generically to water conservation planning:

1. Specify Conservation Planning Goals
2. Develop a Water System Profile
3. Prepare a Demand Forecast
4. Describe Planned Facilities
5. Identify Water Conservation Measures
6. Analyze Benefits and Costs
7. Select Conservation Measures
8. Integrate Resources and Modify Forecasts
9. Present Implementation and Evaluation Strategy

*The Guidelines follow the same essential process, although the scope and content of conservation plans will vary with the level of planning. The number and scope of conservation measures recommended for consideration increases from the Basic to the Intermediate to the Advanced Guidelines.*

The Basic Guidelines contain five simplified steps.

Treat these steps as separate sections of a water conservation plan. Most of the steps include worksheets that can be used to simplify the planning process. Water systems also can provide additional information as needed throughout the planning process, including qualitative and quantitative data. In some cases, systems might want to substitute another format for the requisite worksheet. This generally will not present a problem, as long as the information is sufficient for later steps in the planning process. Information in several of the earlier worksheets is needed for later calculations.

The underlying logic and analytical approach are parallel for the Basic, Intermediate, and Advanced Guidelines. The methods of analysis presented in the Basic and Intermediate Guidelines are simplified to make them easier to use. A cost-effectiveness analysis is optional in the Basic Guidelines. The Advanced Guidelines encourage more sophisticated methods in forecasting and analysis. For advanced systems, more detailed approaches are provided for forecasting demand and supply capacity, analyzing the cost-effectiveness and net benefits of various conservation measures, and integrating selected measures into the utility's resource mix.

Throughout the Guidelines, system managers have opportunities to incorporate existing information (such as a demand forecast prepared for another purpose) and tailor their plans to system-specific needs and conditions. Additionally, the states may adapt the content of the Guidelines and worksheets to their needs and goals. States also might require systems to attach various kinds of supporting documentation as part of the conservation plan, including documents related to regulatory requirements.

## Conservation Measures

Conservation measures are an integral part of the planning process. Like the Guidelines, measures are organized into three broad categories—Level 1, Level 2, and Level 3—each of which is further subdivided as follows:

- Level 1 Measures
  - Universal metering
  - Water accounting and loss control
  - Costing and pricing
  - Information and education
  
- Level 2 Measures
  - Water audits
  - Retrofits
  - Pressure management
  - Landscape efficiency
  
- Level 3 Measures
  - Replacements and promotions
  - Reuse and recycling
  - Water-use regulation
  - Integrated resource management

The organization of the measures is pragmatic, not prescriptive. It is *not* meant to preclude consideration of any measure by any type of water system, but rather to provide a logical framework for planning and management. Nor should this method of organizing the measures be construed as placing a higher value or priority on some measures over others. All conservation measures available now and in the future should be given due consideration based on the needs and capabilities of water systems.

Appendix A to the Guidelines provides a more detailed description of each measure recommended for consideration. The Appendixes provide additional resources for use in planning as well. States should include the complete set of Appendixes together with other appropriate supporting information with each set of Guidelines provided to water systems.

As illustrated in Table 1-3, the measures included in the Guidelines are cumulative, based very roughly on the level of knowledge and resources required for implementation. The Basic Guidelines suggest that Level 1 measures be considered *at a minimum*. These Level 1 Measures are widely—even universally—accepted by water industry professionals and regulators, not just in terms of conservation but in terms of prudent water utility management. The lists of measures contained in the Intermediate and Advanced Guidelines are also suggested to be considered at a minimum. The Intermediate Guidelines include an expanded list of Level 1 Measures plus the Level 2 Measures. The Advanced Guidelines include further expansion of the Level 1 and Level 2 Measures plus Level 3 Measures. The Level 3

Measures under the Advanced Guidelines are mostly applicable to larger systems, systems with substantial planning capability, and/or systems that have acute water conservation needs. The Level 3 Measures are particularly “proactive” in terms of the system’s role in water conservation.

Together, the Guidelines and the measures recommended for consideration within them form a continuum of conservation strategies. This framework recognizes that the list of measures considered minimally appropriate will expand with the size and capability of the water utility, as well as with the conditions affecting the utility (such as climate, water availability, and other factors). In other words, conservation measures considered fundamental are not the same for very small systems as for much larger systems.

While each set of Guidelines suggests that water systems consider at least the listed measures, managers should consider as many measures as practical given their capability and the conditions they seek to address. Water systems may not necessarily implement every measure. The Guidelines suggest that systems give careful consideration to each measure; if systems choose not to implement measures considered minimally appropriate, they should provide an explanation.

As with other elements of the Guidelines, states may adapt or modify the list of conservation measures to fit their needs. States also could make some conservation measures mandatory and/or some conservation measures optional.

The categories used to organize the measures are based on current knowledge and experience in water conservation. Most specific conservation measures can be classified within this framework. Although the measures represent a broad spectrum of approaches, they are not necessarily comprehensive. The number of effective conservation measures will continue to expand. It will be important for water systems to stay current with available technologies and approaches to conservation.

**Table 1-3: Cumulative Nature of the Conservation Measures in the Guidelines [a]**

	<b>Basic Guidelines</b>	<b>Intermediate Guidelines</b>	<b>Advanced Guidelines</b>
<b>LEVEL 1 MEASURES</b>			
Universal metering			
Water accounting and loss control			
Costing and pricing			
Information and education			
<b>LEVEL 2 MEASURES</b>			
Water-use audits			
Retrofits			
Pressure management			
Outdoor efficiency			
<b>LEVEL 3 MEASURES</b>			
Replacements and promotions			
Reuse and recycling			
Water-use regulation			
Integrated resource management			

[a] See the Guidelines and Appendix A for the specific conservation measures recommended for consideration within each of the levels and categories.

## 5. CAPACITY-DEVELOPMENT APPROACH

### Conservation by Small Water Systems

States should consider several factors when deciding whether to require small water systems to plan for water conservation. States can determine the appropriate approach to conservation planning for small water systems on a statewide or case-by-case basis.

Small water systems can benefit from efficiency and conservation as well as larger systems. In fact, the potential for eliminating, downsizing, or postponing capital projects through strategic supply and demand management may be *more* important for smaller systems given financial and other constraints. However, small systems face many competing challenges and their ability to devote resources to conservation *planning* may be very limited.

*For very small water systems, conservation planning can be accomplished in part through the state's capacity-development strategy. Strategies to improve the technical, managerial, and financial capacity of water systems are required under the SDWA. States can provide conservation planning assistance to small systems as part of their capacity-development efforts.*

For systems serving under 3,300 people (approximately 1,000 connections), a Capacity-Development Approach is suggested. Use of the Guidelines could be based on each state's assessment of the needs and capabilities of their small water systems. The key component of this approach is to link conservation planning for small systems to state capacity-development strategies. Those systems identified as needing assistance could receive assistance from the state in planning and implementing a basic water conservation program as outlined below. Those small systems not identified in the state's capacity-development strategy could be required to submit a plan. The Basic Guidelines would be appropriate for those systems not being assisted by the state under the Capacity-Development Approach.

### Capacity Development

Section 1420 (c) of the SDWA requires that, by August 6, 2000, in order to avoid withholding of SRF funds, states must develop and implement a strategy to assist public water systems in acquiring and maintaining technical, managerial, and financial capacity.<sup>5</sup>

<sup>5</sup> U.S. Environmental Protection Agency, *Information for the Public on Participating with States in Preparing Capacity Development Strategies* (Public Review Draft, EPA 816-D-97-003, January 8, 1998).

The three aspects of capacity have been defined in EPA Guidance as follows:<sup>6</sup>

- *Technical capacity* is the physical and operational ability of a water system to meet SDWA requirements. Technical capacity refers to the physical infrastructure of the water system, including the adequacy of source water and the adequacy of treatment, storage, and distribution infrastructure. It also refers to the ability of system personnel to adequately operate and maintain the system and to otherwise implement requisite technical knowledge.
- *Managerial capacity* is the ability of a water system to conduct its affairs in a manner enabling the system to achieve and maintain compliance with SDWA requirements. Managerial capacity refers to the system's institutional and administrative capabilities.
- *Financial capacity* is a water system's ability to acquire and manage sufficient financial resources to allow the system to achieve and maintain compliance with SDWA requirements.

Within the each area of capacity--technical, financial, and managerial--are several specific elements. Several basic conservation practices can be directly linked to these basic elements of capacity, as summarized in Table 1-4.

**Table 1-4: Common Elements of Capacity Development and Water Conservation Planning**

Type of Capacity	Elements of Capacity Development [a]	Elements of Basic Water Conservation
Technical	<ul style="list-style-type: none"> <li>▪ <b>Source-water adequacy</b></li> <li>▪ <b>Infrastructure adequacy</b></li> <li>▪ <b>Technical knowledge and implementation</b></li> </ul>	<u>Universal metering</u> <ul style="list-style-type: none"> <li>▪ Source-water metering</li> <li>▪ Service-connection metering and reading</li> <li>▪ Meter public-use water</li> </ul> <u>Water accounting and loss control</u> <ul style="list-style-type: none"> <li>▪ Account for water</li> <li>▪ Repair known leaks</li> </ul>
Managerial	<ul style="list-style-type: none"> <li>▪ <b>Staffing and organization</b></li> <li>▪ <b>Effective external linkages</b></li> <li>▪ Ownership accountability</li> </ul>	<u>Information and education</u> <ul style="list-style-type: none"> <li>▪ Understandable water bill</li> <li>▪ Information available</li> </ul>
Financial	<ul style="list-style-type: none"> <li>▪ <b>Revenue sufficiency</b></li> <li>▪ <b>Fiscal management and controls</b></li> <li>▪ Credit worthiness</li> </ul>	<u>Costing and pricing</u> <ul style="list-style-type: none"> <li>▪ Cost-of-service accounting</li> <li>▪ User charges</li> <li>▪ Metered rates</li> </ul>

[a] Elements with direct relevance to water conservation appear in bold face.

<sup>6</sup> U.S. Environmental Protection Agency, *Guidance on Implementing the Capacity Development Provisions of the Safe Drinking Water Act Amendments of 1996* (August 6, 1998).

As these linkages suggest, the conservation measures identified as basic actually can be interpreted much more broadly. These practices are considered reasonably appropriate for all community water systems because they correspond to some of the basic elements of capacity as well.

Under the Capacity-Development Approach states encourage and assist small water systems in making a variety of conservation-oriented improvements. States should provide technical assistance to water systems to help them implement at least the basic elements of a conservation program as shown in Table 1-4. As stated previously, systems that are not capacity-limited or that are interested in a more comprehensive planning approach may use the Basic Guidelines.

The Safe Drinking Water Act provides up to a 10% set-aside from a state's SRF allotments that can be used by states to develop and implement a capacity-development strategy for water systems. States may use part of those funds to assist water systems to develop water conservation programs as part of its capacity-development efforts.

## 6. STATE ROLES

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### Policy Issues

If states choose to use the guidelines, a number of specific decisions or actions may be needed to place the guidelines within the context of existing state policy and/or introduce new planning requirements for water systems. Among other policy determinations, the states should:

- ❑ Clarify state goals with respect to water conservation.
- ❑ Specify the role of conservation planning in SRF and other programs.
- ❑ Determine eligibility for public funding for conservation planning.
- ❑ Identify which water systems are expected to file water conservation plans, and under what circumstances.
- ❑ Decide whether any elements of the Guidelines should be made mandatory or permissive, based on specified system profiles and conditions.
- ❑ Provide state guidance manuals and other technical assistance.
- ❑ Provide state-specific benchmarks and standards for use by water systems in preparing plans.
- ❑ Review water rights laws and other potential disincentives to water conservation.

*Implementing the water conservation plan guidelines will be a challenge for the states, as well as for water systems. State implementation issues include policy; technical assistance; plan review and approval; monitoring, reporting and updates; and coordination.*

### Technical Assistance for Systems

For many states, the availability of technical assistance for water system managers determines the success of water conservation planning efforts. Obviously, greater levels of assistance require a greater resource commitment on the part of the state. States may reduce these costs by coordinating efforts with existing programs, activities, and resources, such as the Bureau of Reclamation in the western states.

Systems using the Basic Guidelines might require more technical assistance, particularly if they have never prepared a conservation plan. As previously mentioned, some funding for technical assistance may be available through the SRF, particularly for small systems in conjunction with state capacity-development programs. Systems using the Intermediate and Advanced Guidelines may require less technical assistance in order to prepare plans, but they may ask states to respond to more complex technical questions. States can provide technical assistance in a number of ways, including workshops and training sessions; manuals, workbooks, and templates; and one-on-one assistance.

## **Workshops and Training Sessions**

Workshops and training sessions are a useful means to acquaint utilities with SDWA provisions, including SRF procedures and conservation planning. Training sessions can focus on the steps in the planning process and the methodologies used in planning (such as demand forecasting and cost-effectiveness analysis).

In addition to state-sponsored programs, states should encourage systems to take advantage of industry-based technical training opportunities. Rural water associations, university agricultural extension offices, the American Water Works Association and sections, and other organizations also offer a network of resources and expertise to aid systems in water conservation planning.

## **Manuals, Workbooks, and Templates**

Although the Guidelines are designed to be relatively comprehensive, supplemental materials may be needed to provide background and information to make their use easier and more effective. Materials on water conservation planning are widely available in published form (see Appendix D).

States can make planning easier for systems by providing additional materials, including workbooks, templates, guidebooks, sample plans, or responses to frequently asked questions. States also can help systems with some of the estimates required in the guidelines by providing accepted estimates for certain inputs (such as projected population data for forecasting). These materials can be made available through published documents, interactive computer software, or the internet. Care should be taken that the provided materials are consistent with state-adopted guidelines.

## **One-On-One Assistance**

Providing one-on-one assistance to water systems for conservation requires an investment of resources on the part of the state, but it can be highly effective. States can provide one-on-one assistance on site, at state offices, or through telephone calls and electronic mail. For small systems, the one-on-one approach has been used to help managers prepare a basic business plan.

A variation of the one-on-one approach is to design a hands-on workshop for smaller systems. During the course participants would actually complete the conservation plan described in the Basic Guidelines.

## **Review and Approval**

States may take various approaches to review and approval of conservation plans. The level and nature of the review and approval process might depend on state goals related to water conservation and the role of system plans in furthering these goals. States could simply

require systems to have a plan on file, or impose a formal review and approval process. Reviewing agencies could provide feedback on water conservation plans and suggest revisions. Loans, permits, or other approvals may depend on the state's review and approval of the conservation plan.

Responsibility for plan approval generally will rest with the agency requiring the plan. In some cases, a state agency that does not otherwise implement water resource or conservation policies might adopt the planning requirement. This might be the case, for example, if the agency administering the SRF adopts the guidelines for use. In such instances, the state should set up an interagency review and approval process.

## Monitoring, Reporting, and Updates

Under the Guidelines, systems describe their intentions for evaluating and updating their water conservation plans. States may impose additional monitoring and reporting requirements, including a more specific schedule for updating plans.

State monitoring may be informal or formal. A more formal approach is to audit implementation and results at some water systems. States can provide systems with feedback and technical assistance during the audit process.

States may also ask water systems to file routine reports on their progress in meeting water conservation planning goals, in which case the states should be specific about what kinds of data and what level of detail are needed to fulfill reporting requirements. This could be a simple progress report, in the form of a Worksheet, or a more detailed analysis.

The states should determine the frequency of plan updates. For example, the Guidelines suggest regular five-year intervals. The frequency of updates could vary for water systems depending on state-specified criteria: systems using the Basic Guidelines could update their plans on a three-year schedule; systems following the Intermediate Guidelines could update their plans on a two-year schedule; and systems following the Advanced Guidelines could update their plans on an annual basis. Other system characteristics or circumstances could be used as well. States could link other approvals, including future funding applications, to plan updates.

## Interagency Coordination

These guidelines should enhance state water management efforts, not create unnecessary or duplicative requirements on water systems. Coordination of state requirements and programs will help ensure effective water conservation efforts on the part of utilities.

As mentioned earlier in this information document, coordination of state water conservation planning will reduce redundancy and lower planning costs. States can use a number of techniques to share information and coordinate activities among state agencies with diverse

responsibilities. One approach is to conduct a joint review and approval process which can help close information gaps and avoid confusion. A less formal approach is for agencies to hold regular meetings to exchange information about water systems' progress in meeting planning and other regulatory requirements.

Another very useful technique for promoting interagency coordination is to adopt a Memorandum of Understanding (MOU), in which signatory agencies agree on their separate and joint responsibilities for implementing requirements. An MOU between the state SRF and resource agencies, for example, could help clarify roles and responsibilities for states that require conservation planning by SRF applicants. For example, the SRF agency might need the resource agency to review plans and assist in the priority ranking prior to granting loans. Coordination also would be helpful for technical assistance and plan monitoring purposes.

## 7. STATE CONSERVATION PROGRAMS

State experience with water conservation is substantial, although planning approaches and requirements vary considerably from state to state. Planning requirements across state and federal jurisdictions were analyzed using published documents and other secondary research sources. As of late 1997, eighteen jurisdictions had instituted some kind of formal conservation planning guidelines for water utilities. Table 1-5 provides an overview of water conservation planning requirements, as well as conservation-oriented requirements under the state SRF programs.

*Many states already implement water conservation programs. Experience with these programs provides a wealth of information from which to draw when designing state water conservation policies.*

Many states have water conservation planning guidelines or other requirements embedded in existing statutes or rules. For example, conservation planning might be required in connection with obtaining a water withdrawal permit, or some types of state funding. States that have conservation requirements do not necessarily incorporate existing requirements into their SRF programs. Several states, however, specify that compliance with existing regulations, including conservation-related regulations, is a prerequisite for loan applications.

EPA selected twelve jurisdictions for more detailed study of planning guidelines and related documents:<sup>7</sup>

- Arizona
- California
- Connecticut
- Kansas
- Massachusetts
- Nevada
- New Jersey
- New York
- Rhode Island
- Texas
- Washington
- U.S. Bureau of Reclamation (BOR)

These states and BOR represent substantial diversity in terms of location, water resource needs and issues, and approaches to water conservation planning. The conservation guidelines in these jurisdictions were reviewed along four key dimensions:

- *Authority and agencies.* What is the basis of authority for water conservation or conservation planning? When was this authority enacted? What agencies are involved in implementing and reviewing water conservation plans?

<sup>7</sup> Several of these guidelines also were included in a recent study by the American Water Works Association. See American Water Works Association. *Model Guidelines for Water Conservation Plans: Guidance for State Water Conservation Plans* (WITAF Project #559). Denver: AWWA, November 1997. Prepared by Maddaus Water Management, et al.

- *Planning requirements.* What are the requirements for water conservation plans? Who must submit plans? What triggers the requirement for planning? What variations are there in the planning requirement, especially in terms of utility size and water availability?
- *Format and content.* What issues are required or recommended for consideration in the plan? Are specific goals addressed in the plan? Does the plan provide a description and data for the water system? Is the plan required to analyze future needs and emergency management? What specific conservation measures are included in the plan?
- *Implementation and evaluation.* How will the plan be implemented? Are revisions and updates required? How are the plans enforced and can penalties be imposed? Is there a means to evaluate the plans?

A key finding of the review is that water conservation planning varies considerably among the jurisdictions. Conservation planning also is a relatively recent phenomenon in these states, in most cases less than ten years old. In these states, authority for conservation planning tends to be vested in the state water resource agency. Water conservation planning can either be a general requirement or triggered by a permit application. Only three of these states specifically require planning for a state revolving fund loan.

The states also address system size very differently in planning requirements. In five of the states, all water providers are included in the requirements; in the other states, certain size thresholds trigger plan submission. States use different units when considering system size, such as water volume or number of customers. Only three of the states (Kansas, Texas, and Washington) significantly vary their water conservation planning requirements according to system size.

State planning requirements differ most in terms of the format and content of plans. Most guidelines and statutes require or recommend that plans include a description of the service area and supply systems; quantification of past, current, and future water use and supply; emergency or contingency planning; and an implementation schedule. However, the importance placed on these items varies.

All of the states and the BOR suggest that plans discuss particular water conservation measures, although specific requirements vary. The conservation measures most frequently mentioned in the statutes and guidelines are:

- Metering and meter repair,
- Leak detection and repair,
- Rate design and conservation pricing,
- Plumbing retrofits and promotion of water-saving fixtures,
- Public information and education, and
- Landscaping.

Table 1-6 provides a summary of components of conservation planning in terms of whether these and other measures are suggested for consideration, must be addressed in the plan, or are required. All planning guidelines surveyed, however, require that utilities address public education, leak detection and repair, metering, and pricing.

Most of the state water conservation planning guidelines and associated statutes mention the need for an implementation schedule and revisions or updates. Connecticut provides a detailed form for this purpose. Most states that require revisions or updates specify five-year intervals.

Enforcement and penalties are not highly developed in most jurisdictions. A few states have the authority to levy fines for failure to submit or implement a conservation plan. However, most do not have rigorous enforcement procedures. Evaluation procedures also vary considerably; Massachusetts and the BOR mention the need for evaluation, while California specifies a relatively comprehensive approach.

In sum, flexibility in the planning process is suggested by many of the existing approaches. In particular, most jurisdictions seem to exercise discretion in terms of evaluating plans based on size, water availability, and other water system characteristics. However, the diversity of state experience in this area provided a wealth of information from which to draw in crafting these Guidelines. Also, attention to existing state and federal approaches help ensure that the federal Guidelines are complementary to these ongoing efforts.

Table 1-5: State Conservation Planning and SRF Activities (as of Fall 1997)

States or Agencies	States with Planning Guidelines	States with Planning Guidelines			Conservation Criteria in SRF	Nature of Conservation Criteria in SRF
		Guidelines by Water System Size	Guidelines by Water Availability/ Conditions	Planning as an SRF Requirement or Prerequisite		
Alabama	No	<i>Not applicable</i>			None planned	<i>Not applicable</i>
Alaska	No	<i>Not applicable</i>			None planned	<i>Not applicable</i>
Arizona	Yes	No	No	No	Considered elsewhere	<i>Not applicable</i>
Arkansas	No	<i>Not applicable</i>			None planned	<i>Not applicable</i>
California	Yes	No	No	No	None planned	<i>Not applicable</i>
Colorado	Yes	No	No	Yes	Yes	Ranking and planning
Connecticut	Yes	No	Generally	Yes	Yes	Ranking criterion
Delaware	No	<i>Not applicable</i>			Yes	Bonus points
Florida	Yes	No	No	No	None planned	<i>Not applicable</i>
Georgia	Yes	No	No	Yes	Yes	Planning compliance a prerequisite
Hawaii	No	<i>Not applicable</i>			None planned	<i>Not applicable</i>
Idaho	No	<i>Not applicable</i>			Yes	Planning compliance a prerequisite
Illinois	No	<i>Not applicable</i>			None planned	<i>Not applicable</i>
Indiana	No	<i>Not applicable</i>			Yes	Ranking criterion likely
Iowa	No	<i>Not applicable</i>			Yes	Plan required (SRF specific)
Kansas	Yes	Yes	No	Yes	Yes	Plan required
Kentucky	Yes	No	No	Yes	Yes	Plan required
Louisiana	No	<i>Not applicable</i>			None planned	<i>Not applicable</i>
Maine	No	<i>Not applicable</i>			None planned	<i>Not applicable</i>
Maryland	No	<i>Not applicable</i>			None planned	<i>Not applicable</i>
Massachusetts	Yes	No	No	Yes	Yes	Planning requirement likely
Michigan	No	<i>Not applicable</i>			None planned	<i>Not applicable</i>
Minnesota	Yes	No	No	Yes	Yes	Planning requirement likely
Mississippi	No	<i>Not applicable</i>			Yes	Planning compliance a prerequisite

Table 1-5 (continued)

States or Agencies	States with Planning Guidelines	States with Planning Guidelines			Conservation Criteria in SRF	Nature of Conservation Criteria in SRF
		Guidelines by Water System Size	Guidelines by Water Availability/ Conditions	Planning as an SRF Requirement or Prerequisite		
Missouri	No	<i>Not applicable</i>			None planned	<i>Not applicable</i>
Montana	No	<i>Not applicable</i>			Yes	Ranking criteria
Nebraska	No	<i>Not applicable</i>			None planned	<i>Not applicable</i>
Nevada	Yes	No	Generally	No	No	<i>Not applicable</i>
New Hampshire	No	<i>Not applicable</i>			Yes	Bonus points
New Jersey	Yes	Yes	No	No	Considered elsewhere	<i>Not applicable</i>
New Mexico	No	<i>Not applicable</i>			Possible	<i>Not applicable</i>
New York	Yes	No	No	No	Yes	Bonus points
North Carolina	No	<i>Not applicable</i>			None planned	<i>Not applicable</i>
North Dakota	No	<i>Not applicable</i>			Yes	Ranking criteria
Ohio	No	<i>Not applicable</i>			Yes	Bonus points
Oklahoma	No	<i>Not applicable</i>			None planned	<i>Not applicable</i>
Oregon	Recommended	No	No	No	Considered elsewhere	<i>Not applicable</i>
Pennsylvania	No	<i>Not applicable</i>			Not quantified	<i>Not applicable</i>
Rhode Island	Yes	No	No	No	Considered elsewhere	<i>Not applicable</i>
South Carolina	No	<i>Not applicable</i>			None planned	<i>Not applicable</i>
South Dakota	No	<i>Not applicable</i>			None planned	<i>Not applicable</i>
Tennessee	No	<i>Not applicable</i>			None planned	<i>Not applicable</i>
Texas	Yes	No (SRF)	Generally	Yes	Yes	Plan required
Utah	Recommended	No	No	Yes	Yes	Planning compliance a prerequisite
Vermont	No	<i>Not applicable</i>			None planned	<i>Not applicable</i>
Virginia	No	<i>Not applicable</i>			None planned	<i>Not applicable</i>
Washington	Yes	Yes	Generally	Yes	Yes	Plan required
West Virginia	No	<i>Not applicable</i>			Yes	Planning compliance a prerequisite
Wisconsin	No	<i>Not applicable</i>			Yes	Bonus points likely
Wyoming	<i>Not applicable</i>					
BuRec	Yes	No	No	No	<i>Not applicable</i>	
Delaware RBC	Yes	No	No	No	<i>Not applicable</i>	

Table 1-6: Components of State Water Conservation Plan Guidelines (as of Fall 1997)

	Pricing and Rates	Metering	Audits	Leak Repair	Retrofitting	Land-scaping	Reuse	Public education	Pressure Control	Other
Arizona	<i>Goal-oriented planning--specific measures are not required</i>									
California	P	P	P	P	P	P		P		
Colorado	P			P	P	P	P	P		
Connecticut	S	S	S	S	R		S	R	S	S
Florida	S	S		S	S	S	S	S		S
Georgia	P	P		P	P		P	P		
Kansas	P	P		P	P	P	P	P	P	
Kentucky		R		R						
Massachusetts	S	S		S				S		
Minnesota	R	P	P	P	P			R	P	
Nevada	R	R	S	R	R	R	R	R	R	
New Jersey	R	R		R	P		P	P		
New York	S	S	S	S	S	S		S		
Oregon*	P	P	P	P	P	P	P	P		
Rhode Island	R	R	R	R	R			R		
Texas	P	P	P	P	S	S	S	P	S	S
Utah*	S	S		S	S	S	S			
Washington	P	R		P	P	P	P	R		
Bureau of Reclamation	S	S	S	S	S	S	S	S		S
Delaware River Basin	P	P		P	P					

Key:

S = suggested consideration

P = plan must address

R = program or measures are required

\* Water conservation plans are recommended, not required except under specified circumstances.

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