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Our Vision for Statewide Water Supply

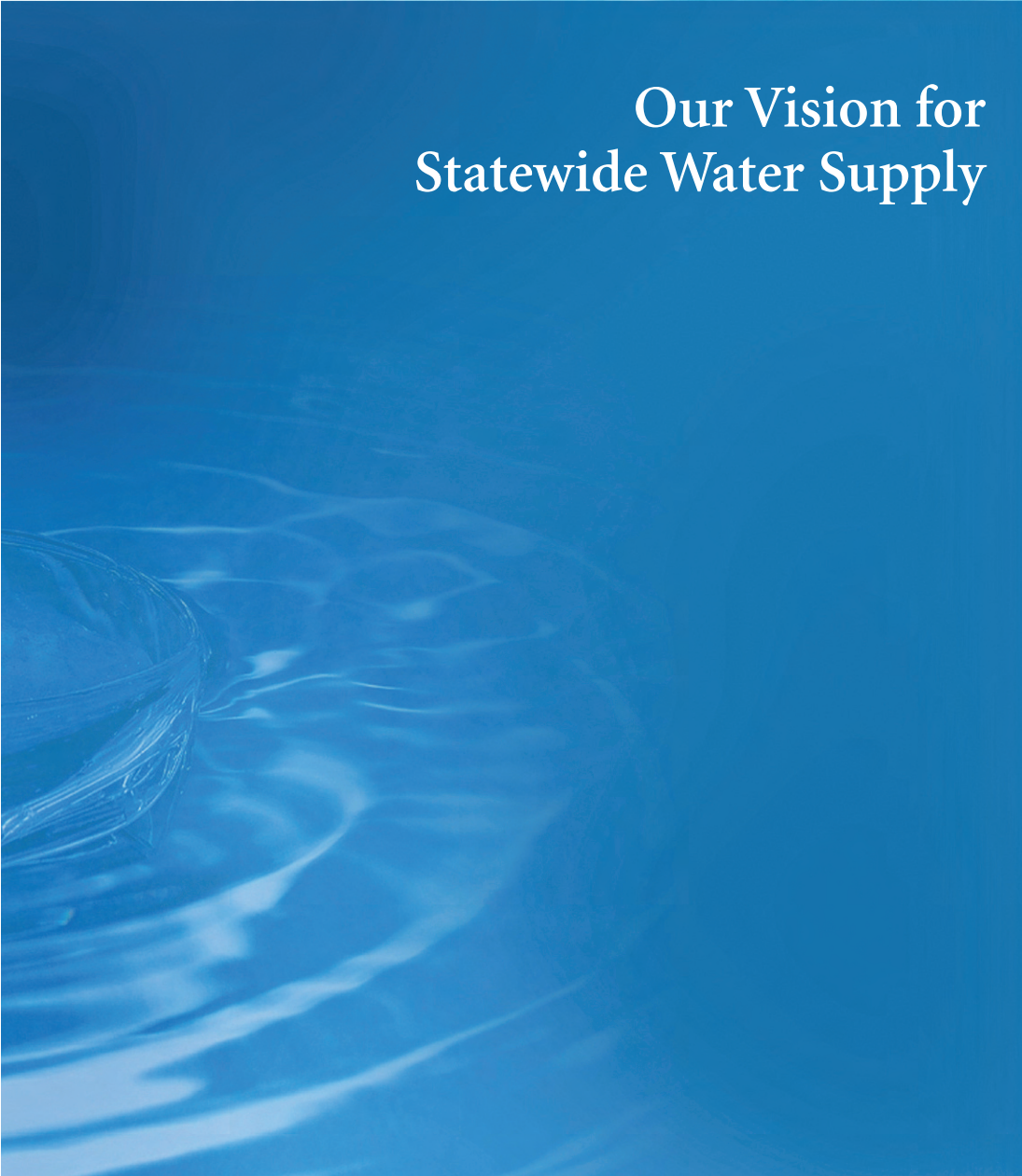
American Water Works Association

FLORIDA

2030

A Vision for Sustainable
Water Infrastructure

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Reviews were requested and received from 27 water resource professionals from academia, consulting, local and state agencies, professional societies, agricultural agencies and environmental organizations. A summary of third party review comments are available on our website at www.florida2030.com.

This publication includes executive summaries of the Florida 2030 papers. For the full papers and a summary of third party review comments, please visit our website at www.Florida2030.com.

Table of Contents



Florida 2030 – A Vision for Sustainable Water Infrastructure	1
Utility / Water Management District / Florida	5
Department of Environmental Protection Partnerships	
Climate Change	7
Water Resources Management	9
Surface Water	11
Desalination	13
Water Conservation	15
Reclaimed Water	17
Water Allocation and Transfer	19
Governance/Funding	21

Florida 2030 – A Vision for Sustainable Water Infrastructure



By the year 2030, the water supply vision of Florida is one in which state-wide water demands are sustained through a combination of alternative water supplies, water use efficiency, and collaborative multi-jurisdictional water supply efforts.

It is currently the policy of the State to ensure that new supplies of water will be developed so that *all users in all parts of the State* will have adequate supplies of water to meet *all their needs now* and into the future, including sufficient water to meet *the needs of natural systems*. This policy should be the basis for any discussion with regard to water supply.

As we look to Florida's water future with a goal to continue to meet this policy, we do so with an understanding that the inexpensive groundwater that we have traditionally relied on as a primary source of water to meet its water supply needs, will not be adequate to meet all the future needs of Florida. Recently, in many areas within the State, the water management districts have found that groundwater cannot be relied on to meet the growing demand for water in these areas. Therefore, Florida's future water supply needs in these areas can be met only by:

1. decreasing demand through increased conservation;
2. increasing the use of reclaimed water; and
3. increasing the supply of water from alternative water sources, such as surface water and desalination.

The high costs of developing *alternative* sources are leading water suppliers to consider the value of quantifiable water conservation as an alternative water source. A common perception is that water conservation involves "doing without". However, a significant level of water conservation can be achieved with minimal inconvenience and at less cost than other alternative supplies. The use of reclaimed water will become increasingly important to meet the non-potable water needs of the State, including landscape irrigation, to replace the use of potable water for these purposes.

This vision also encompasses interconnected supply systems created by an assortment of multi-jurisdictional water supply entities, utilizing diverse sources, including surface waters and desalinated brackish water and seawater, efficiently managed and distributed; to meet the demand, while a high level of water use efficiency curbs demand and the need for new supplies.

Issues that Impact our Water Supply Vision

Environmental Issues _____

- ◆ The protection of the environment in developing new water supply is crucial.
- ◆ Withdrawal of surface water for public water supply must meet established Minimum Flows and Levels to prevent adverse effects to water bodies.

- ◆ Total Maximum Daily Load analysis need to be considered. Total Maximum Daily Load is the maximum amount of a given pollutant that a water body can absorb and still maintain its designated uses (e.g., drinking, fishing, swimming, shellfish harvesting).
- ◆ New legislation to eliminate ocean outfalls along with recent regulatory changes in the underground injection control program shows that traditional wastewater disposal or management options are becoming constrained.

Supply Issues _____

- ◆ Inexpensive groundwater sources are not adequate for our future needs.
- ◆ Alternative water supplies are needed and are costly.
- ◆ Water storage and distribution challenges exist with alternative water supplies.
- ◆ Relationships between the utilities, water management districts and the Florida Department of Environmental Protection need more coordination and communication to develop regional solutions.
- ◆ Water Supply development impacts stakeholders across utility jurisdictions and water management district boundaries.
- ◆ Funding sources are scarce and strained.
- ◆ With Florida's projected population growth, the demand for water supply sources will increase dramatically.

Climatological Issues _____

- ◆ Energy usage to treat and deliver water/wastewater needs to be considered regarding climate change and variability.
- ◆ Sea level rise may affect utility infrastructure and water supplies.

Our Balanced Vision of the Future

Demand Management _____ (conservation and reclaimed water reuse offsets)

- ◆ Water conservation will be the priority water supply option considered to reduce new demands, and ranked for implementation based upon its benefit and cost effectiveness.
- ◆ All classes of water users in Florida will be at the highest feasible level of water use efficiency.
- ◆ All water users, except for domestic uses and minor agricultural activities, will measure and report their water use regularly to the water management districts.
- ◆ Per capita use in urban areas will be significantly less than today.
- ◆ Maximized use of reclaimed water state-wide will dramatically reduce the demand for the development of new alternative water supplies.

Supply Management _____

- ◆ Complete integration of all source alternatives will be achieved in order to manage the re-

sources from a resource sustainability basis - the concept of using the ‘right water at the right time.’

- ◆ Surface water supply will be a critical component of a resilient, drought-resistant, and interconnected water supply system.
- ◆ Seawater desalination will become an increasing part of Florida’s future water supply portfolio and play a significant role to meet the increased water demands.
- ◆ More efficient and effective allocation and coordination of government responsibilities is accomplished.
- ◆ There will be an increased number of multi-jurisdictional water supply entities across the state to construct and operate numerous alternative water supply projects.
- ◆ There will be an equitable framework of regulatory/statutory incentives and /or mutually beneficial agreements which, taken together, will encourage the sharing of resources between utilities.
- ◆ Utilities will plan new facilities that can be adapted to future climatic impacts and join others in reducing emission of greenhouse gases by promoting water use efficiency and evaluating technologies having low carbon footprints.
- ◆ The carbon footprint of water use will be reduced dramatically by lowering levels of energy needed in water withdrawals, treatment, distribution, and collection, treatment and disposal of wastewater.

Actions for a Balanced Vision

Conservation _____

1. Adopt a policy that, in all state and water management district funding programs, quantifiable water conservation best management practices are considered an “alternative water supply” and are equally as eligible as capital facility expansion projects for financial assistance.
2. Provide a stable funding base for the Conserve Florida program directed by section 373.227, F.S., including the state-wide water conservation Clearinghouse for public water supply.
3. Implement new Landscape Irrigation and Florida Friendly Design Standards.

Reclaimed Water _____

1. Provide incentives for the development of region wide plans for the distribution, interconnection, and use of reclaimed water.
2. Provide a dedicated source of state funding for alternative water supply development projects.
3. Provide incentives for reclaimed water providers by allowing offsets to consumptive use where appropriate to do so.

Water Supplies _____

1. The Florida Department of Environmental Protection must use its existing authority to facilitate creation of multi-jurisdictional water supply entities.

2. Establish funding for the creation of multi-jurisdictional water supply entities.
3. Establish dedicated funding for the design and construction of alternative water supply projects.
4. Create Part VII to Chapter 373, Florida Statutes to consolidate existing statutory provisions on water supply policy, planning, production and funding.
5. Modify statutory and rule language that promotes and facilitates water supply development and resource sharing.
6. Educate the public, legislators, regulators and other stakeholders about the need for and benefit of developing a consistent, state-wide allocation policy.
7. Streamline and develop consistent permitting process between the Florida Department of Environmental Protection, the water management districts, the Florida Department of

Health, the Florida Department of Community Affairs and the local environmental agencies. One-stop shopping is the objective with consistent requirements.

8. Minimum Flows and Levels need to be established to identify and protect water supply needs of natural systems before determining the availability of surface water for water supply.

Climate Change _____

1. Support research to develop Florida-specific climate change models in order to foster a sustainability/vulnerability analysis handbook on climate change impacts.
2. Utilities must anticipate, plan for and adapt to the potential effects of climate change.
3. Facilitate use of renewable energy sources and reduced energy designs for planned facilities. □

Utility/Water Management District/Florida Department of Environmental Protection Partnerships



Issue Background and Definition

Partnerships between utilities, water management districts and the Florida Department of Environmental Protection are essential in the planning, development and operation of public water supply facilities and infrastructure. Through these partnerships, the creation of multi-jurisdictional water supply entities have helped resolve many conflicts. To fully comprehend and evaluate relationships between these entities, it is important to first understand each entity's current role as related to water supply development and management.

Issue Criticality

Specific issues pertinent to partnerships include the following:

- ◆ Cooperative relationships between utilities, water management districts, and the Florida Department of Environmental Protection are vital to Florida's water supply.
- ◆ Tax reform and economic challenges will create more competition for public funds.
- ◆ Future water supplies will impact stakeholders across utility and water management district jurisdictions.
- ◆ Utilizing diverse sources of water will be important to take advantage of Florida's climate variation.

- ◆ Clear and frequent communication is necessary to identify flaws and avoid financial losses.
- ◆ High legal costs required to settle disputes related to water use permit issuances must be avoided.
- ◆ Delays in developing new water supply projects will lead to water shortages and higher costs, which must be minimized.
- ◆ Effective communication between entities is necessary to avoid constraining future collaborative efforts.

Florida 2030 Vision

By the year 2030, we must seek to achieve the most efficient and effective allocation and coordination of government responsibilities. As water supply issues and challenges change, government must also change to better manage public funds and resources. Future relationships allow for easier evaluation of inter-District projects and encourage the development of regional watershed-based solutions to local water supply problems; making water more available for all existing and future uses and avoiding adverse effects of competition for water supplies.

Pathway to Florida 2030 Vision

To achieve the Florida 2030 vision described above, the following should be considered:

- ◆ Conduct semi-annual meetings among key staff of utilities, water management districts and the Florida Department of Environmental Protection.
- ◆ Increase partnership opportunities at various association conferences/workshops.
- ◆ Conduct meetings with members of the Florida legislature to further the discussion on water issues.
- ◆ Develop an effective sustainable communication plan among water stakeholders.
- ◆ Coordinate data collection efforts with the Florida Department of Environmental Protection's Integrated Water Resource Monitoring Network with all entities.
- ◆ Set-up a framework to coordinate state-wide water resource management activities among the five water management district offices.

Issues for Consideration

1. Water management districts should evaluate the current 20-year planning horizon for water supply partnering with input from the

Florida Department of Environmental Protection, the Florida Department of Health, the Florida Department of Agriculture and Consumer Services, the Florida Department of Community Affairs and utility stakeholders.

2. Annual meetings should be held within each water management district to include participation of all key stakeholders.
3. Water management districts, the Florida Department of Environmental Protection and utilities should identify opportunities for establishing additional multi-jurisdictional water supply entities.
4. Water management districts and the Florida Department of Environmental Protection should enhance dialogue among regional / district offices to ensure consistency in rule application.

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Climate Change

Issue Background and Definition

The principle impacts of climate change will manifest themselves through changing precipitation patterns that may result in more severe drought or floods, varying stream flow patterns, rising sea levels along the coasts and freshwater contamination. The uncertainty caused by climate change relative to its impacts on water resources poses a daunting challenge for drinking water, wastewater, and storm water utilities responsible for managing water resources for local communities. Therefore, utilities must anticipate, plan for and adapt to the potential effects of climate change.

Issue Criticality

From the utilities' perspective there are three critical issues regarding climate change: (1) how increasing hydrologic variability may affect water supply and demand and wastewater collection and treatment, (2) how energy usage, to treat and deliver potable water and to treat and dispose of wastewater, may contribute to climate change or variability, and in coastal areas, and 3) how sea level rise may impact water supplies. Changes in climatic patterns potentially may have large impacts on Florida in the coming century. Increasing hydrologic variability (e.g., wetter wet seasons and drier dry seasons) will pose challenges for Florida since topography limits the ability to create artificial areas to store excess precipitation for use during the anticipated extreme dry periods. Sea level rise is expected to be a long-term trend

that has potentially serious effects on the southern half of the state.

Florida 2030 Vision

By the year 2030, all of Florida's water supply needs will be addressed for the long-term through a series of planning, infrastructure and policy initiatives. To insure that water supply availability is not one of the subsequent problems, utilities must plan new facilities which can be adapted to future climatic impacts, develop supplies which can be implemented in light of changing conditions, and join with others in reducing the emissions of greenhouse gases by promoting water use efficiency, evaluating technologies having low carbon footprints, and low-carbon supply options.

Pathway to Florida 2030 Vision

To achieve the Florida 2030 vision described above, the following should be considered:

- ◆ Risk assessments must be done to understand the uncertainties associated with the effects of climate change.
- ◆ There must be a diversified approach to water supplies to minimize future risks associated with climate change.
- ◆ There must be increasing conjunctive use of water supplies and an increased ability to transfer water between regions.
- ◆ Utilities must adapt to address sea level rise.

Issues for Consideration

1. Address climate impacts on utilities.
2. Evaluate the borrowing capacity of utilities to fund infrastructure needs in the long-term. In addition, develop/provide:
 - a) additional funding to harden existing infrastructure,
 - b) incentives to reinvest in water capture technology (e.g., horizontal wells and lock/salinity structures).
3. Support research to develop Florida-specific climate change models in order to foster a sustainability / vulnerability analysis handbook on climate change impacts.

4. Provide assistance to smaller utilities in characterizing their current water supplies and how these supplies could be affected by climate change.
5. Provide direction to the water management districts on long-term issues with protecting existing water supplies (including potential changes in state water policy).
6. Develop and promote changes to state water policy to facilitate conjunctive uses of water sources, additional storage capacity to capture run-off to tide and to promote regional sharing of water sources where needed.

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Water Resources Management

Issue Background and Definition

Future water supply needs are projected to increase by 2 billion gallons per day over the next 25 years. Traditionally, water supplies for most water uses in Florida have come predominantly from fresh groundwater and some surface water systems. Water resources management concerns the management and operations of sustainable water and wastewater infrastructure in a comprehensive and integrated fashion, recognizing and addressing the unique characteristics of water resources in Florida. These water resources are defined by a climate with abundant, but highly variable rainfall conditions. This inherent variability presents significant challenges for reliable and cost-effective water supply infrastructure.

Water resources management must address the total water cycle including rainfall; water sources; water supply capture, treatment and distribution; wastewater treatment and reuse. Within the water cycle, there are many potential water resource management objectives in addition to sustainable water supplies including flood control, stormwater management, and environmental protection and restoration. Integration of these multiple objectives within water resource management provides opportunities to leverage funding and seek optimal solutions.

Issue Criticality

Several significant developments have brought the issue of water resources management to the forefront in recent years, including population growth and associated costs, public concern over increases in water rates, intergovernmental coor-

dination and cooperation, environmental restoration and protection, climate variability, and source water protection.

Florida 2030 Vision

Since the sustainable limits of traditional water resources are now being reached, the majority of future water needs in most areas of Florida will need to be met by 2030 through the development of new water resources including:

- ◆ Water use efficiency/conservation
- ◆ Expanded use of reclaimed water
- ◆ Stormwater
- ◆ Fresh surface water from lakes and rivers
- ◆ Brackish groundwater
- ◆ Brackish surface water from rivers
- ◆ Seawater

Pathway to Florida 2030 Vision

To achieve the Florida 2030 vision described above, the following should be considered:

- ◆ Integrated water resource planning based on scenario planning and optimization
- ◆ Maximize water conservation and use of reclaimed water as the foundation of sustainable water supply planning
- ◆ Regional infrastructure for regional solutions
- ◆ Creation of significant new water storage capacity
- ◆ Source water protection

- ◆ Drought management and adaptive management

Issues for Consideration

1. Extend the current 20 year water supply planning horizon to as long as possible (at least 30 years), and use integrated water resource planning to develop flexible and optimized water supply solutions for the future
2. Make the creation of new multi-jurisdictional water storage a state-wide priority (including new reservoirs, Aquifer Storage and Recovery, and wet season storage within existing drainage and water control systems) by prioritizing funding, land acquisition, and needed regulatory reforms (for Aquifer Storage and Recovery).
3. Establish state-wide priorities for water use in the most extreme drought scenarios, where

the current water shortage mechanisms of “shared pain with reductions by all users” is insufficient, in order to reduce uncertainty and establishes priorities in deliberative fashion.

4. Review and amend existing water management district consumptive use permitting programs to facilitate and encourage integrated permitting of multiple sources, with conjunctive use of groundwater, surface water, and reclaimed water, providing water users with greater operational and economic certainty of how new sources fit in with current sources of supply.

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Surface Water

Issue Background and Definition

Surface water supply has traditionally been the major source of public water supply throughout the U.S. Major rivers, reservoirs and lakes are primary sources of supply and treated by public utilities in many states. In Florida, surface water sources for public water supply have been relatively few. Only about 50 of the state's 6,000 public water systems utilize surface waters as their source (only 20 provide surface water treatment at their utility with the others being consecutive systems that purchase treated water from these suppliers). Groundwater has historically been the major resource used throughout the state for public water supply primarily due to its easy accessibility and low cost.

The state's significant population growth has caused some coastal regions in Florida to experience salt-water intrusion while inland areas are experiencing adverse ecological affects. The need for development of environmental and economical sustainable alternative water supply alternatives in Florida is critical. The hydrology and geography of Florida make it challenging for the development of surface water supplies. The hydrology of peninsular Florida provides abundant rainfall in the summer months, but limited rainfall in the winter and spring months rendering some surface waters non-sustainable on a continuous basis. The geography of Florida is relatively flat, limiting the traditional construction of reservoirs or manmade impoundments. The use of surface water for public water supply must be looked at in a broader context of environmental

sustainability, reliability, water quality, treatment and economic impact if it is to be a true alternative in Florida.

Issue Criticality

The development of surface water in Florida as an alternative supply is emerging as a critical component of public water supply systems. The full development of surface water supply as an alternative is dependent on multiple issues, including the following:

- ◆ *Watershed Issues:* Withdrawal of surface water for public water supply must meet established Minimum Flows and Levels to prevent adverse effects to water bodies.
- ◆ *Total Maximum Daily Load analysis:* Total Maximum Daily Load is the maximum amount of a given pollutant that a water body can absorb and still maintain its designated uses (e.g., drinking, fishing, swimming, shellfish harvesting).
- ◆ *Raw Water Quality:* Surface water plants must provide high level treatment, including filtration and high level disinfection.
- ◆ *Storage:* The key to sustainability of surface water supply is the development of water storage facilities to provide for the capture and storage of water during rainy times for use during dry periods when surface water withdrawal may not be available. Aquifer Storage

and Recovery wells and off-stream reservoirs have the potential to provide the necessary storage.

Florida 2030 Vision

By the year 2030, it is essential to develop a robust water supply system that is sustainable, reliable, safe and affordable. Surface water supply will be a critical component of a resilient, drought-resistant, and interconnected water supply system and should be considered with a mix of traditional and other alternative water supply options. When integrated with other source alternatives, such as brackish groundwater, Aquifer Storage and Recovery, reclaimed water, storm water, the resources can be managed from a resource sustainability basis - the concept of using the 'right water at the right time'. The integration of surface water supply into a diversified water system provides the ability to maximize surface water withdrawal when it is abundant in the wet season and minimize withdrawal in the dry season. The use of any alternative supply option must include a strategy to maximize reclaimed water and conservation and to promote increased regionalization along with other water efficiency strategies.

Pathway to Florida 2030 Vision

To achieve the Florida 2030 vision described above, the following should be considered:

- ◆ Minimum Flows and Levels need to be established to identify and protect water supply needs of natural systems before determining the availability of surface water for water supply.
- ◆ Off-stream surface water reservoirs and Aquifer Storage and Recovery systems are required to allow proper storage of diverted water during periods of high flow to hold

water during wet times of the year for later use in the dry season.

Issues for Consideration

1. Provide regulatory incentives to encourage local governments and water suppliers to coordinate water supply projects.
2. Development of conjunctive water permitting rules and regulations to provide for the integration of diversified sources into a resource management plan.
3. Florida Department of Environmental Protection, water management districts and other stakeholders need to develop strategies that promote development of conjunctive water supply systems that integrate surface water sources with groundwater and other alternative sources.
4. Provide incentive based funding programs such as water management district cooperative funding, Senate Bill 444 funding and specific legislative initiatives for the development of surface water treatment projects.
5. Watershed management needs to relate to water quality.
6. The development of Water Reservations needs to take into consideration all existing and future water supply uses, and must be done in cooperation with all stakeholders.

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Desalination

Issue Background and Definition

As Florida is faced with increasing limitations on the use of traditional groundwater supplies to meet future potable water demands, the development of new alternative water supplies will be needed. Desalination is likely to be seen as one of the most favored options for meeting those future potable water demands.

Desalination is the process by which salt is removed from seawater or brackish water. Today there are more than 12,000 desalination plants operating worldwide producing over 12 billion-gallons-per-day of desalinated water. Florida embraced desalination over 30 years ago and now has more than 130 facilities operating statewide. The most common desalination process utilizes reverse osmosis technology. Water supply to a desalination plant is typically via an ocean surface or sub-surface intake, or well system.

Issue Criticality

Specific issues pertinent to the public include the following:

- ◆ Cost to desalinate is higher relative to other water supply alternatives.
- ◆ More energy is required for desalination; impact reduced with green alternatives.
- ◆ Environmental consideration for marine species and concentrate disposal is critical.

Florida 2030 Vision

By the year 2030, seawater desalination will become an increasing part of Florida's future water

supply portfolio and play a significant role to meet the increased water demands. Desalination can greatly reduce environmental impacts due to over-pumping groundwater or over-utilization of surface water supplies. Desalination is drought independent and environmental impacts can be minimized with diligent attention to design and operation, and use of renewable energy for power. Diversification including large-scale desalination ensures provision of a secure water supply to meet residential and commercial water needs and sustain the public and economic welfare.

Pathway to Florida 2030 Vision

To achieve the Florida 2030 vision described above, the following should be considered:

- ◆ A state-wide or district water supply strategy should be developed which includes desalination as an important, but limited feature to ensure adequate water supply.
- ◆ Educate the public, legislators, regulators and other stakeholders by providing accurate costing information, collect and provide environmental study results in a digestible format, provide information on energy-efficient sustainable desalination facilities and approaches, and frame "4-taps" strategy (seawater desalination, surface supply, water recycling and import of water) in context.
- ◆ Facilitate creation of joint action utilities to achieve greater common goals, which can be fully public entities or a combination of both private/public partnerships.

- ◆ Facilitate use of renewable energy sources and reduced energy designs.
- ◆ Develop permitting model to streamline and expedite project permitting.
- ◆ Develop a coastal and inland county water grid to integrate desalinated water into other water systems.

Issues for Consideration

1. Need streamlined and consistent permitting process. A common process is needed between the Florida Department of Environmental Protection, the water management districts, the Florida Department of Health, the Florida Department of Community Af-

fairs and local environmental agencies. One-stop shopping is the objective with consistent requirements.

2. Need regulations updated to deal with pre-treatment, disposal and concentrate issues.
3. Need public and stakeholder outreach program to educate regarding costing and environmental advantages and sensitivity of technologies.

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Water Conservation

Issue Background and Definition

In light of current and future limitations on the use of traditional groundwater sources, increased reliance will be placed on conserving potable water resources as an option to developing new alternative water supplies. Water conservation efforts in Florida date back more than 30 years. Currently, the State's water management districts require planning and implementation of water conservation measures by public water suppliers, commercial and industrial users, landscape and golf course users, and agricultural users. Examples of existing requirements for public water suppliers include:

- ◆ Adoption of local ordinances that affect irrigation hours, new landscaping, and plumbing fixtures
- ◆ Evaluation of the feasibility of water reuse
- ◆ Leak detection
- ◆ Conservation-based rate structures
- ◆ Public education
- ◆ Industrial and commercial water use audits

The scarcity of existing and easily developed traditional water sources and the high cost of developing alternative sources are leading water suppliers to more fully consider the value of quantifiable water conservation as an alternative water source. Unfortunately, a common perception is that water conservation involves “doing without”. Actually, significant water conservation can be achieved with minimal inconvenience and at less cost than other supplies.

Issue Criticality

Development of conventional and alternative supplies is costly and requires significant use of energy and capital. Implementation of conservation measures reduces both water and energy use, and is easier to implement. The following critical issues should be considered when developing conservation measures:

- ◆ Ensuring a sufficient water supply without compromising the ability to meet future generations' needs.
- ◆ Increasing the efficient use of potable water supplies increases the availability of the existing water supply for new customers by deferring increases in demand.
- ◆ Identifying cost-effective solutions to manage demands in order to help defer/avoid costs of new supply and electric generation.
- ◆ Increasing efficient use of potable water supplies to help reduce the risk of overwhelming supply deficits during a water shortage.
- ◆ Reducing energy requirements and greenhouse gas emissions, protecting air and water quality.

Florida 2030 Vision

By the year 2030, all classes of water users in Florida will have spent a decade at the highest feasible level of water use efficiency. All water users, except for domestic uses and minor agricultural activities, will measure and report their water use regularly to the water management districts. Per capita use in urban areas will be significantly less

than today. The carbon footprint of water use will be reduced dramatically by lowering levels of energy in water withdrawals, treatment and distribution; and in collection, treatment and disposal of wastewater. Water conservation will be the priority water supply option considered for new demands, and ranked for implementation based upon its multiple benefits and cost effectiveness. Ultimately, expensive treated potable water will no longer be used for non-potable uses when economically and physically feasible.

Pathway to Florida 2030 Vision

To achieve the Florida 2030 vision described above, the following should be considered:

- ◆ Develop regulations resulting in more water efficient homes, businesses and institutions throughout Florida.
- ◆ Financial incentives, an effective means of increasing conservation, should be defined and evaluated for funding through Capital Improvement Projects at the local level.
- ◆ Adopt the U.S. Environmental Protection Agency's WaterSense product standards and promote WaterSense products.
- ◆ Develop and implement rate structures that are designed to account for changes in water use, provide incentives and funding mechanisms to conserve water, and include a "safety net" for low-income/minimal use consumers.
- ◆ Continue to build collaboration between stakeholders, such as Conserve Florida, developing effective approaches to conservation.
- ◆ Continue developing educational programs integrated into quantifiable conservation program elements for all stakeholders.
- ◆ By 2020, future development should not use potable water sources for irrigation purposes where economically and physically feasible.

Issues for Consideration

1. Provide a stable funding base for the Conserve Florida program directed by section 373.227, F.S., including the state-wide water conservation Clearinghouse for public water supply.
2. Update the Florida Building Code to include efficiency requirement of various products beyond the National Energy Policy Act requirements, using the Environmental Protection Agency's WaterSense product label, U.S. Department of Energy 'Energy Star' specifications and Alliance for Water Efficiency plumbing codes and standards documentation.
3. Change existing water management district water use permitting requirements to provide consistency in application of implementation requirements and the goals associated with use of water conserving best management practices.
4. Implement new Landscape Irrigation and Florida Friendly Design Standards.
5. Adopt a policy that, in all state and water management district funding programs, quantifiable water conservation best management practices are considered an "alternative water supply" and are equally as eligible for financial assistance, with all projects consistently evaluated and selected based on cost-effectiveness, reliability and sustainability.

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Reclaimed Water

Issue Background and Definition

The Florida Department of Environmental Protection defines reclaimed water as water that has received at least secondary treatment and basic disinfection and is reused after flowing out of a domestic wastewater treatment facility. Extensive treatment and disinfection ensures that public health and environmental quality are protected. Reclaimed water is a very important alternative water source as it saves water that would otherwise be withdrawn from freshwater ground or surface water sources to meet demands. Reclaimed water also reduces the reliance on traditional disposal methods such as ocean outfalls or deep injection wells which waste the resource.

Florida's reclaimed water systems have a total permitted wastewater treatment capacity over 2,000 million gallons per day and treated over 1,400 million gallons per day in 2006. The total reclaimed water capacity in 2006 was 1,368 million gallons per day. New legislation to eliminate ocean outfalls as a primary disposal method along with recent regulatory changes in the underground injection control program show that traditional wastewater disposal or management options are becoming constrained; thus, reclaimed water is becoming a more significant water resource alternative.

Issue Criticality

Along with water conservation, the reuse of reclaimed water is an essential tool for demand management. The maximization of reclaimed water for non-potable uses (e.g. landscape irriga-

tion) to substitute for the current use of potable water will decrease the need for the development of expensive alternative water supply projects in the future.

Florida 2030 Vision

By the year 2030, Florida will have maximized its use of reclaimed water, and the use of reclaimed water state-wide will have dramatically reduced the demand for the development of new alternative water supplies.

Pathway to Florida 2030 Vision

To achieve the Florida 2030 vision described above, the following should be considered:

- ◆ Local governments, in conjunction with the Florida Department of Environmental Protection and water management districts must continue to work together in partnership toward consistent reclaimed water goals. Several key recommendations that have resulted from the Reclaimed Water Stakeholder meetings which began in 2008 are:
 - Ensure that water management districts explore mechanisms to allow reclaimed water use providers to comment on reuse feasibility findings of consumptive use permitting applications.
 - Incorporate proposed language changes in Section 373.361(1)(Appendix H) that will include the Florida Department of Envi-

ronmental Protection and utilities explicitly in the regional water supply planning process.

- The Florida Department of Environmental Protection and water management districts should develop consistent definitions and approaches for the use of offsets in the consumptive use permitting program, which should be codified in the district consumptive use permitting rules and possibly in the statewide Water Resource Implementation Rule (Ch. 62-40, F.A.C.).
 - Expand the Conserve Florida program to include the evaluation of reclaimed water. Water management districts and utilities need to work together to identify appropriate language revisions to Section 373.227, F.S.
 - Restore funding to the Water Protection and Sustainability Program for alternative water supply development.
- ◆ There must be increased public acceptance of use of reclaimed water for non-potable uses.

Issues for Consideration

1. Optimize the reclaimed water resource when used for irrigation, balancing efficiency of use while avoiding unintended adverse impacts of over-regulation.

2. Develop regulatory tools and incentives that facilitate augmentation as a tool to expand reclaimed water customer bases and promote the efficient use of reclaimed water, including augmentation in the water conservation planning process.
3. Provide incentives for reclaimed water providers by allowing offsets to consumptive use where appropriate to do so.
4. Provide a dedicated source of state funding for alternative water supply development projects, which further incentivizes and sustains reclaimed water development in Florida.
5. State policies regarding the use of reclaimed water should ensure that diverse beneficial uses are supported, including innovative and recharge uses.
6. Facilitate permitting approval processes by improving coordination between regulatory agencies in multi-jurisdictional projects and tightening time clocks for issuing necessary regulatory authorizations.

For More Information

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Water Allocation and Transfer

Issue Background and Definition

Early in Florida's development, water supply was believed to be unlimited; more than 50 inches average annual rainfall, productive aquifers, many lakes, streams, and rivers, as well as the Gulf of Mexico and the Atlantic Ocean. However, with Florida's continued development, and the increasing demands of domestic use in combination with significant demands of agriculture and industry, the need for water supply has increased significantly and the limitations to the availability of supply are becoming more realized. When developed resources become scarce, competition among users increases often resulting in legal and political confrontations. These "water wars" are generally costly in both economic and political capital. Florida may not have a water supply problem but a water storage, distribution and cost of water production problem.

To meet growing demands some water providers are looking to water resources outside their respective regions. Thus, if the state is to meet future water demands, an environmentally sound, economically equitable and regionally collaborative allocation / transfer process is needed. To be successful, that process must address both the needs of the water user and those of the area of potential withdrawal. To that end, acceptable solutions may require some form of regulatory or politically brokered partnering involving transfers and allocations of the available water imposed at some level of acceptability by the parties.

Issue Criticality

Specific issues pertinent to water providers include the following:

- ◆ The need to avoid repeated and intensifying regional and inter-regional water wars.
- ◆ A well-defined transfer and voluntary trading process that promotes ability to transfer water from areas of availability to areas of need.
- ◆ The protection of the economic interests of the areas of availability.
- ◆ The protection of the environment is crucial to providing a framework to address the state's long term water supply.

Florida 2030 Vision

By the year 2030, the water supply vision encompasses interconnected supply systems, utilizing diverse sources, efficiently managed and distributed; to meet the demand, while a high level of water use efficiency curbs demand and the need for new supplies. It also includes an equitable framework of regulatory/statutory incentives and/or mutually beneficial agreements encouraging areas with available water to partner with areas of need to share resources. Florida's state-wide water demands will need to be sustained through a combination of growth management policies, water use efficiency and

collaborative multi-jurisdictional water supply efforts.

Pathway to Florida 2030 Vision

To achieve the Florida 2030 vision described above, the following should be considered:

- ◆ Educate the public, legislators, regulators and other stakeholders about the benefit of developing a consistent, state-wide, water allocation and transfer process.
- ◆ Development and implementation of an acceptable water transfer process that transcends multi-jurisdictional boundaries to ensure sustainable water supply for all.
- ◆ Modifications to statutory and rule language that promotes and facilitates water supply development, resource sharing and transfer amongst water providers.
- ◆ Developing options or alternatives by engaging all stakeholders in open discussion of the options/alternatives proposed. Examples of the options/alternatives for water resource transfers directly or through credits and/or some type of resource trading include: Re-

gional Utility Grid; Resource Trading; Source Trading; Resource Re-distribution; Permit Transfers; Inter-Regional Transfer.

Issues for Consideration

1. Provide language in Section 373, F.S. clarifying that co-operative and voluntary water resource transfers between water users will be considered by water management districts, provided environmental protection is maintained or can be demonstrated.
2. Promote dialogue between the Florida Department of Environmental Protection, water management districts and water users about alternatives and options available for water resource transfer and trading, their potential role in regional water resource management and the barriers to their consideration and implementation.

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Governance/Funding

Issue Background and Definition

The inexpensive groundwater the State has traditionally relied on as a primary source of water to meet its water supply needs will not be adequate to meet all the future needs of significant areas of peninsular Florida. Recently, the water management districts have declared that groundwater cannot be relied on to meet the growing demand for water in many areas within the State. This is in addition to existing limitations on groundwater withdrawals in southwest Florida. Florida's future water supply needs in these areas will be met only by: (1) decreasing demand through increased conservation, (2) increasing the reuse of reclaimed wastewater, and (3) increasing the supply of water from alternative water sources, such as surface water and desalination. Due to the high costs of developing alternative water supplies, there is increasing need for local governments and others to work together on a regional basis to address this common problem. While there are currently a limited number of regional water supply entities in the State, there will need to be many more similar multi-jurisdictional entities to ensure the future construction of the alternative water supply projects necessary to meet the State's future water supply needs.

There is an increasing concern that while the existing statutory governance structures have served the state well, they may not be adequate to fully implement the current State water policy of promoting "the availability of sufficient water for all existing and future reasonable-beneficial uses and natural systems". There is also a growing awareness that Florida may not have a water

shortage problem so much as it has a storage and distribution problem. There may be a seasonal abundance of water in one part of the State at the same time there are seasonal shortages in other parts. Therefore, the issue of the storage and distribution of water over broader geographic areas of the State must be considered.

Issue Criticality

The timely creation of multi-jurisdictional water supply entities, especially in the central and southeast parts of the state, will be essential for the construction of the alternative water supply projects needed to meet not only the current regulatory restrictions for these areas, but to meet the State water policy. The consequences of failing to create the appropriate multi-jurisdictional water supply entities in a timely manner will be that the needed alternative water supply projects will not be constructed in time to meet the regulatory constraints. This will inevitably result in either large-scale building moratoria or the removal of the regulatory constraints. It could also result in competition for water supplies between the various water user groups.

If the water management districts are not able to resolve the water supply issues that have developed in many parts of the State, the State may be forced to step in to provide a solution. To meet Florida's future water supply needs over the long-term, it will be imperative to ensure: (1) effective water supply planning, (2) implementation of regional and state-wide water supply plans, (3) the creation of multi-jurisdictional water supply entities, and (4) the construction and operation of

the infrastructure for the effective storage and distribution of water to and between multi-jurisdictional water supply entities.

Funding will be important to provide seed money for the creation of multi-jurisdictional water supply entities, the initial selection and design of alternative water supply projects, and to help offset the large capital costs associated with the construction of those projects.

Florida 2030 Vision

By the year 2030, it is likely that there will be several multi-jurisdictional water supply entities across the State that will have collaborated to construct and operate numerous regional alternative water supply projects to produce, store and distribute water. It is also likely that some of these entities will have, or will be planning, interconnections between them so as to provide for a “water grid” to help ensure the effective distribution of water.

Only if a clearly defined need has been identified should a state-level entity be created to ensure that sufficient water is available for “all existing and future reasonable-beneficial uses and for natural systems” by ensuring the necessary planning and construction of regional alternative water supply projects, and by ensuring the construction and operation of the necessary storage and distribution infrastructure to provide water to and between multi-jurisdictional water supply entities.

Pathway to Florida 2030 Vision

To achieve the Florida 2030 vision described above, the following should be considered:

- ◆ Local governments will need to cooperate to develop multi-jurisdictional water supply entities in order to construct and operate alternative water supply projects.

Issues for Consideration

1. Whether the Florida Department of Environmental Protection should act more aggressively to use its existing statutory authority to facilitate the creation of multi-jurisdictional water supply entities and ensure the construction of needed alternative water supply projects.
2. Whether funding should be provided to assist in the creation of multi-jurisdictional water supply entities.
3. Whether additional funding should be provided to multi-jurisdictional water supply entities to assist with the design and construction of alternative water supply projects.
4. Whether a new Part VII to Chapter 373, Florida Statutes, should be created to consolidate existing statutory provisions on water supply policy, planning, production and funding.

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