ORANGE COUNTY WATER DISTRICT

Orange County's Groundwater Authority

TESTIMONY

OF

MR. DENIS BILODEAU

FIRST VICE PRESIDENT
AND
MEMBER
BOARD OF DIRECTORS

ORANGE COUNTY WATER DISTRICT
FOUNTAIN VALLEY, CALIFORNIA

PRESENTED BEFORE

COMMITTEE ON ENVIRONMENT

AND PUBLIC WORKS

WASHINGTON, D.C. 20510

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Chairman Inhofe, Ranking Member Boxer and members of the committee, I am Denis Bilodeau and I appear before you as the first vice president, an elected member of the board of directors, for the Orange County Water District (OCWD) located in Fountain Valley, California. I am deeply honored to appear before you to discuss one of the most pressing issues of our times: the provision of safe and reliable water supply. OCWD is located in Southern California and provides groundwater to 19 cities and water agencies in northern and central Orange County. They are the cities of Anaheim, Buena Park, Fountain Valley, Fullerton, Garden Grove, Huntington Beach, La Palma, Newport Beach, Tustin, Orange, Santa Ana, Westminster, Seal Beach; and the following agencies: East Orange County Water District, Golden State Water Company, Irvine Ranch Water District, Mesa Water District, Serrano Water District, and Yorba Linda Water District. Together they serve more than 2.4 million citizens and businesses within the sixth largest county of the nation by population. This distinction is important as it drives our priority to find sustainable water supplies for our growing region.

Since 1933, OCWD has taken pride in advancing the development of sustainable water supplies to address a growing population and precipitation pattern changes. This commitment is demonstrated vividly by our recently expanded Groundwater Replenishment System (GWRS). The GWRS is the world's largest advanced water purification system for potable reuse. It takes treated wastewater that otherwise would be sent to the Pacific Ocean, and purifies it using a three-step advanced process.

OCWD is pleased to be part of today's hearing into the implications associated with an uncertain water supply future and how, as a nation, we must respond to this challenge. We all know the statistics that illustrate how scarce our freshwater supplies are becoming. Parenthetically, I must add that this challenge is both economic and social and has global implications associated with national security. Simply stated, drought, population increases, pollution and other factors impacting water supplies threaten our quality of life. If we lack a reliable supply of water, the impacts on food production, industrial production and recreational activities are dramatic, with reverberations to our domestic economy.

Today, I would like to address these issues by discussing how OCWD and its partner, the Orange County Sanitation District (OCSD), have developed a sustainable response to the drought conditions that we have experienced for almost a decade and the incredible severity of the drought during the past five years. I want to emphasize that the past winter’s El Niño has only served to validate the programs and projects that OCWD has pursued. El Niño brought near record snowpack and almost brimming reservoirs to northern California. But in our region, the record

rainfall we anticipated did not occur.

Clearly, the new normal of rainfall and snowfall events, along with accelerated evaporation and melting, means that it is necessary to develop and implement innovative water development approaches. It has often been stated that California has always met challenges and succeeded, defying the conventional wisdom that our state is too big and the problems are too big to find a long-lasting solution. In the case of water supply, OCWD and our partner agency, OCSD, have taken a big problem, challenging meteorological conditions, and designed a solution that delivers long-term water security for our region that can be replicated throughout the arid and semi-arid regions of our nation and the world.

In Orange County, our climate is becoming more arid. The base flow of the Santa Ana River, our main source of surface water, continues to decline. Imported water supplies from Northern California and the Colorado River are restricted. We expect droughts to occur three out of every 10 years. Population growth within our region is expected to increase and so will water demands. There was and is a need to address these multiple challenges.

In the late 1980s, OCWD recognized that to preserve our region's economic and social vitality, the challenges of our groundwater depletion, seawater intrusion and unreliable surface water supplies demanded an innovative solution. OCWD implemented an aggressive program to develop a novel water treatment process with our sister agency, the Orange County Sanitation District. This initiative grew into the Groundwater Replenishment System (GWRS).

Unlike traditional approaches to water treatment, our approach recognized that wastewater is a valuable resource. The ability to design a technological approach that would capture this resource, remove the impurities and recycle it back into the environment would address multiple needs ranging from supplementing water supply to protecting our natural resources.

The GWRS takes treated wastewater from OCSD that otherwise would be discharged into the Pacific Ocean. It implements a sophisticated process to purify this water. The process involves using a three-step advanced treatment process that consists of microfiltration, reverse osmosis, and ultraviolet light with hydrogen peroxide. This treatment and purification process produces high-quality water that exceeds all state

and federal drinking water standards. Let me emphasize this point. OCWD is able to exceed public health standards in developing a sustainable water supply.

It was during your tenure on the Senate Appropriations Committee, Senator Boxer, that you were able to secure the first federal appropriation towards construction of GWRS. Over a five-year period, $20 million in federal funding from the Bureau of Reclamation's Title XVI program leveraged over $70 million in state, local and private funding to provide for the $481 million construction cost of the GWRS.

The GWRS has allowed our region to take control of our future. However, this effort has been achieved in a partnership with federal and state agencies that provided vital assistance in making this project a reality. Today, the partnership is responsible for delivering enough drinking water for 850,000 people with a production of 100 million gallons of water per day.

As much as the GWRS is providing an important water supply, locally it sends an important message to other water scarce regions of the nation and the world. The GWRS is a project based upon a local solution grounded in local control, reliability and a high- quality water supply. The opportunity to implement a proven approach like the GWRS can return important dividends to political and economic security needs.

There is no one-size-fits-all solution to water reuse. The GWRS establishes a technology foundation to design and build individual approaches to sustainable water supply needs. Determining if and how your reused water becomes part of the drinking water supply depends on water needs of a specific community, water sources, public health regulations, costs, and the types of water infrastructure in place, such as distribution systems, man-made reservoirs or natural groundwater basins.

As the state of California and the entire west faces severe drought conditions, increased attention must ultimately turn to locally developed projects and programs like the GWRS that provide reliable water supplies.

When we think about water supply needs and ways in which to reduce tensions that arise from constrained potable water supplies, the ability to share experiences and promote collaboration is important. OCWD shares its knowledge of advanced water purification technology. By example, we helped Singapore to enhance its own national

water security. Today, Singapore is considered a shining example of how a nation state can effectively meet its water scarcity challenges.

Even in recent years, the country of Singapore has been principally reliant on water from Malaysia. With political differences between the nations and the expiration of long- term agreements for water transfers between Malaysia and Singapore, the Public Utilities Board of Singapore (PUB) was tasked with finding ways to make Singapore more water self-sufficient.

The Singapore PUB reached out to OCWD to learn about the technology that the District used to purify wastewater back into the groundwater supplies. Water leaders from Singapore visited OCWD to see what we were doing to recycle and purify wastewater and how we were communicating with the public to bolster public support for potable reuse.

Working with the information gained from OCWD's successes, Singapore developed both purified water, which they call NEWater, and seawater desalination to diversify their portfolio of available water sources for the drinking water system and to protect against depletion of their reserves during periods of drought or interruption of imported supplies.

Singapore also recognized the critical role this water supply provides to its industrial economic engine. It built a secondary water distribution system to enable it to serve high-purity water to high-technology customers, such as wafer fabricators and circuit board manufacturers who need higher purified water for their manufacturing processes. This system of high-purity recycled water distribution helped to make Singapore a desirable place for valuable industrial customers to locate manufacturing facilities. Most of the NEWater produced in Singapore is used by industrial customers.

The contributions that OCWD has made to advance the technological capabilities of developing safe and sustainable water supplies was recognized at the 2014 Singapore International Water Week. The Lee Kuan Yew Water Prize was presented to the Orange County Water District. This distinguished prize honors outstanding contributions by individuals or organizations toward solving the world's water problems by applying innovative technologies or implementing policies and programs that benefit humanity.

This prize is a tremendous achievement for OCWD and we are proud to serve as a global leader in the water industry. Greater investments must be made to implement similar projects around the world. We must continue to create opportunities for water experts to engage with one another and exchange information to keep pushing the envelope and develop new and innovative solutions to global water problems.

The Singapore/Orange County Water District's example is that of a technology transfer and collaboration to solve global water supply and quality problems. This kind of collaboration delivers tangible benefits in the form of improved quality of life, robust economic activity, public health improvements, and long-term socio-economic stability. The lessons that OCWD has learned in its decades of developing and implementing responses to water scarcity demands a meaningful partnership among various local, regional, state, national and international agencies to ensure the development of sustainable water supplies that, in turn, will reduce, if not eliminate, the potential for conflict related to unreliable water supplies.

I would note that Senator Boxer has sponsored Water in the 21st Century Act (S. 176). OCWD supports this legislation. It offers a framework to advance innovative solutions from water recycling to desalination to water data collection and energy efficiency among other initiatives. We recommend this committee act on S. 176 to provide an important catalyst to advance alternative water supply projects as well as better informing federal, state and local water resources managers.

The GWRS is one of our proudest achievements in the effort to develop sustainable and safe water supplies. However, it is only one facet of a program to safeguard our region from economic and social disruptions attributable to a changing climate that is the new normal.

One of the most cost-effective solutions that we avail ourselves of involves water conservation. We have an aggressive education program to let our citizens understand how they can be part of the solution. Some of the activities we have implemented include:

Conservation through reduced demand is not going to solve our overall need to assure we have adequate water supplies. In order to supplement our conservation program, OCWD collaborated with the U.S. Army Corps of Engineers to leverage the investment that our region and the Corps have made in constructing Prado Dam. Rather than use

Prado for a single purpose, flood protection, we recognized the potential of conserving water at Prado during storm events that can be subsequently recharged into our basin for future use. The alternative would be to lose this water supply as it courses down the Santa Ana River and into the Pacific Ocean due to Senator Boxer's leadership and this committee's actions, we have relied on annual deviations to permit OCWD and the Corps to capture stormflows for treatment and use to offset demand on imported water supplies.

We understand that the committee is in the midst of reauthorizing the Water Resources Development Act (WRDA). OCWD provided suggested policy to facilitate enhanced conservation at Corps facilities. Our recommendations to the committee arise from our experiences over the past few years working with the Corps to implement a long-term agreement to store water with a priority placed on public safety and in an environmentally protective manner. Simply stated, a clear statement on the priority to approve and implement water conservation activities needs to be made as part of a reauthorized WRDA. This is the case because OCWD has spent too many months beyond our original understanding of the process duplicating studies and awaiting approvals. We also need a statement on the priority to ensure that costs are fairly allocated by guaranteeing that only the separable costs attributable to the water supply conservation allocated to the local water agency. The ability to facilitate an expeditious and equitable agreement to implement an innovative and cost-effective solution with high returns and benefits to the public, but we need a strong statement on the matter as part of the reauthorization of WRDA. We stand ready to support the committee to this end.

Related to the opportunities to advance meaningful stormwater capture is the vital role that real-time monitoring and evaluation can serve in the management of existing facilities. At the state level, many local agencies rely upon advanced monitoring technologies to better inform water managers in decision-making on the retention and release of water from reservoirs. If this sophistication was required at federal facilities, we would likely improve our ability to develop water supply without adverse impacts to the environment and public safety. To this end, we encourage the committee to direct the use of modern forecasting technologies to advance the conservation of our water supplies.

Another opportunity that offers a meaningful contribution to our mutual interest in finding immediate and long-term water supply solutions in an era of changing hydrological conditions is desalination. When we speak of desalination, we need to be

clear that there is a real need to commit resources to research and technology development. Examples from Israel, clearly demonstrate the return on such investments. We must also understand that desalination as a source of water supply carries different challenges depending upon whether it is coastal or inland.

From OCWD's perspective, we believe that coastal desalination might serve an important asset in our arsenal of water supply solutions. However, as an agency that must address the needs of our ratepayers, the challenge for OCWD and other agencies is the cost of desalinated water. As the San Diego plant has illustrated, there are solutions that can be put in place to protect the ratepayers. But it requires careful review and approvals for any proposed project because desalinated water supplies carry a cost beyond traditional sources. Given the new realities that we face in securing a safe and reliable water supply, we cannot turn away from this potential opportunity. This is why OCWD is currently exploring the opportunities and costs of a desalinated water supply.

Whether you support desalination or are on the fence, one important step that we should pursue is a commitment to drive down the costs of producing such a supply. We have seen important advances in driving down the costs on an acre-foot basis over the past several decades. But we can do more. From bringing clarity to the permitting process to reducing the costs of producing water and disposing of the byproducts produced during the treatment process, we can find ways to make desalination more attractive to meeting emergency and long-term water supply needs.

Over the past several years, we have witnessed a growing appreciation of the role of energy efficiency. As we seek to find ways to reduce the cost of innovative technologies, we should not overlook the value in reducing water production, treatment and conveyance costs through energy efficiency. The ability to develop energy savings can serve to advance technologies that today might be considered unaffordable. To this end, we would recommend that we provide tax credits, for example, to make investments in energy efficient technology development and commercialization.

The priority to develop alternative water supply solutions can be aided through informed decision-making on how to invest in the numerous solutions that we are discussing today. One area that holds promise is the field of analytics. The opportunity to collect data and analyze it to determine how water demand impacts

water supply holds the promise of better informing our water managers when decisions on investments are made. We recommend that the committee consider supporting initiatives that would enhance our understanding of how water supplies are utilized, what the metrics tell us about solutions that can address such demands and what kind of mix of conservation, technology and education can deliver meaningful outcomes for our water supply reliability needs. The use of analytics to help guide decisions may benefit the effort to select a portfolio of solutions that advance the needs of a particular region.

I would like to close with one other thought. Often, we in the water industry tend to see innovation within the context of advancing technologies. However, OCWD has learned that a critical component of innovation is education. Our future opportunities to find innovative solutions will depend on the understanding of our communities about the importance of innovation in securing our water future. This was clearly the situation when we successfully constructed and began operating the GWRS. We would urge you to provide for adequate support of education needs going forward so that the public appreciates and better understands the value of our investments in water supply innovation. At OCWD, we recently completed the construction of an educational platform that offers visitors a comprehensive presentation of the water cycle, technology advancements and the overall value of water to our economic, environmental and recreational needs. While technology can deliver solutions, one of the greatest resources we have in meeting the new normal of water supply is an educated public.

Again, OCWD deeply appreciates the opportunity to appear before you today. We look forward to working with you to advance the adoption of innovative solutions to our water resources needs. I would be happy to respond to any questions you may have.