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Good afternoon, Chairman Radanovich and members of the subcommittee, thank you for the opportunity to testify today regarding the roles of groundwater and surface storage. I am Virginia Grebbien and I appear before you as the General Manager of the Orange County Water District located in Orange County, California and on behalf of our Board of Directors. OCWD, formed in 1933, is responsible for managing and protecting the vast groundwater basin under north and central Orange County. The groundwater basin provides about two-thirds of the water supply for 2.3 million people.

I am pleased to appear before you today to review the state of efforts to drought proof Southern California. Over the last twenty-five years Southern California has slowly woken up to the fact that the answer to our need for reliable water supplies will not come from Northern California, the Eastern Sierra or the Colorado River. Instead, the future of water reliability for Southern California lies in our ability to optimize our imported water supplies with local water supply development. In Orange County we are drought proofing our region through innovative measures such as groundwater conjunctive use, groundwater storage programs, recycled water use both for irrigation and indirect potable reuse, groundwater remediation, conservation and conjunctive use of flood control facilities for storm water storage.

I believe we at OCWD are especially well suited to provide the committee with a drought proofing perspective. For more than 75 years, OCWD has been at the vanguard of innovation within the water supply community. We are currently in the process of constructing the largest water reuse facility within the Northern hemisphere, implementing a groundwater storage program with the Metropolitan Water District of Southern California, designing two groundwater remediation projects, studying an emergency storage project with South Orange County and implementing a program to utilize a Corps of Engineers flood control reservoir for surface water storage. These projects and programs are a direct result of our community's willingness to commit, in partnership with the federal government, resources to develop and implement innovative water supply and water storage projects.

Over the past decade, surface storage has been a central theme of CALFED. Indeed, the Metropolitan Water District has begun operating the Diamond Valley Reservoir, the first new storage facility constructed in Southern California in more than 25 years. This reservoir took over 10 years to plan, design and construct at a cost of close to $2 billion dollars. Today, it provides an important source of water security for our region. Surface reservoir storage will always have a role to play in our overall water supply management portfolio. However, these facilities require tremendous lead times to plan, design, permit and secure debt financing. Additionally, environmental issues can and have blocked the development of new surface reservoirs. Relative to groundwater storage, surface reservoirs are also very expensive. We in California, and throughout the west, do not have the luxury to rely solely on traditional storage facilities.

We must find innovative ways to address the water scarcity challenge. I suggest to this subcommittee that groundwater storage represents a tremendous and, for the most part, untapped opportunity. Disruption to the environment is negligible, permitting is less burdensome, and necessary infrastructure is easier to build. In fact, the State of California is in the process of developing its revised water-planning document. As currently drafted, it notes that conjunctive use and groundwater storage has the potential to produce twice as much new water supply (2 million AF) as additional surface storage (1 million AF). I should emphasize that I am not suggesting that above ground storage facilities are no longer relevant. Rather, we should focus on developing a mix of storage alternatives that can collectively reduce the real and intangible costs of delivering water and at the same time improve our water reliability. At OCWD we are managing our groundwater basin to provide storage in three separate ways:

1. Yearly storage through traditional replenishment of the basin with Santa Ana River supplies so that the basin can be utilized on an annual basis and to buffer dry years.
2. Regional storage in which the Metropolitan Water District is storing 66,000 AF of water for use through out Southern California in dry years.
3. Emergency storage in which groundwater from the basin is exported out of the watershed for use by South Orange County in critical dry periods or infrastructure emergency situations.

In contrast to the long time frame to construct a new surface reservoir, implementing a ground water storage program is relatively easy and cost effective if the local political will is in place. For example, the OCWD/MWD groundwater storage program involved MWD paying OCWD approximately $23 million to store 66,000 AF of water. OCWD has invested the $23 million in wells and other infrastructure to be able to increase our annual groundwater production capacity. It took approximately 12 months to negotiate the storage program agreement between OCWD and Metropolitan. A lengthy NEPA process was not required because of the lack of environmental concerns and disruption. Twelve months after signing the groundwater storage program agreement Metropolitan is storing water in the Orange County Groundwater Basin and the new wells and related infrastructure are under construction.

Another key drought proofing strategy is water recycling. Water reuse has one of the largest potentials to meet our increasing water demands in the coming years based on the simple fact that there is a plentiful supply of source water; wastewater. Between Ventura and San Diego, a billion gallons a day of wastewater is treated and discharged into the Pacific Ocean. This plentiful supply of wastewater can be readily upgraded to provide millions of acre-feet of water supply annually. Recycled water can be used for nonpotable purposes such as irrigation and industrial uses. However, if the conjunctive management of recycled water through groundwater storage is considered, the potential exists to dramatically increase the use of recycled water in a cost effective manner protective of public health.

At OCWD we are increasing the conjunctive use of our groundwater basin through the implementation of the Ground Water Replenishment System (GWRS). GWRS is a visionary water purification project that will help increase Orange County's water independence by creating a locally controlled, drought-proof supply of safe, high-quality water – 72,000 AFY – enough water to meet the annual needs of 140,000 families by 2007. The GWRS project will take highly treated sewer water from our partner, the Orange County Sanitation district, water that is currently released into the ocean, and purify it through one of the world's most advanced water purification systems, consisting of microfiltration, reverse osmosis and ultraviolet light and hydrogen peroxide disinfection. The recycled water will then be injected into a seawater intrusion barrier, with the remaining water pumped to spreading basins in the City of Anaheim, where it will naturally filter through the ground and blend with Orange County's other sources of groundwater.

Not only will the GWRS project help to drought proof Orange County by creating a new water supply and using it conjunctively in our groundwater basin, but it will also produce water so pure that it will actually improve the quality of water in the groundwater basin by diluting salts. The GWRS water will exceed all state and federal drinking water standards and have a water quality similar to bottle water. GWRS will provide for a cost-effective storage option using a naturally occurring storage facility – the groundwater basin. I would add that there is an indirect benefit of this process. Because we are recycling wastewater from our neighboring public agency, the Orange County Sanitation District, we are reducing wastewater discharges to the ocean and delaying the need for further expenditure of public resources to construct additional ocean outfall capacity. This is an important consideration especially during these times of severe budgetary constraints at all levels of government.

When we began work on this ambitious project, California was in the throes of a severe climate induced drought. Since that time, other factors have only exacerbated this natural demand. I refer to new demands to meet natural resources needs, increased population demands, and the loss of existing water resources attributable to contamination from MTBE and Perchlorate to name two chemical culprits that are forcing OCWD and other water agencies to find ways to create new water supplies. Today, the ability to reclaim water supplies provides one of the most promising solutions to address these various factors contributing to the water crisis in the west.

The issue of water storage has been a central element of the debate most recently during the CALFED authorization that this subcommittee has worked so many years on and successfully renewed last year. Within this law, authorization is provided for the potential development of several above ground water supply facilities. With crushing federal and state fiscal deficits, it is unclear how these facilities will be financed. Currently the CALFED Authority and the California legislature are wrestling with this problem. How it is ultimately decided will determine how many facilities will be constructed. Whether one or several new facilities are constructed, it will take several years before they are operational. We cannot wait. We need solutions today.

An all too worn out cliché says it all. As water resources managers and policymakers, we need to think outside the box. Let me provide you with one example that can serve as a supplement to our primary goal of developing long-term storage. Throughout the west, we have built flood protection facilities. These facilities are for the most part dry dams. But when it rains, they serve an all important function of protecting human life and property by controlling otherwise raging floodwaters. In Orange County, we have the Prado Dam. This facility most recently illustrated how valuable it is during our unparalleled rains of the past few months. For years, we watched as these storm waters were captured and then released by the U.S. Corps of Engineers to flow into the Pacific Ocean. In the early 1990's in cooperation with the Corps of Engineers, OCWD conducted a series of environmental studies and determined that with proper protocols in place, we can operate the dam to conserve some portion of these storm flows for a supplemental water supply. Today, each time it rains we have the potential to capture up to 27,000 AF behind Prado Dam, retain it and then slowly release it so that we can capture the water and use it to replenish the groundwater basin.

Our partnership with the Corps of Engineers has allowed OCWD, the federal government and the County of Orange to achieve a secondary benefit –water storage - from Prado Dam at no additional cost and without impacting the Dam's primary function – flood control. This is precisely the kind of thinking outside the box I believe is necessary if we are to meet our future water needs. We have such facilities scattered throughout the country. We should use these public facilities to deliver maximum benefits to the public. Artificial designations such as dry dams do not address today's needs. I urge the Subcommittee to consider the innovative way OCWD has used existing facilities.

This subcommittee has spent a number of years hearing from interested stakeholders on the importance of maintaining a strong federal partnership with local public water agencies. Title XVI has served as the singular approach to this partnership. Indeed OCWD has relied on this program to jump start GWRS. However, the program has been hobbled by bureaucratic indifference over the years. Only through the stalwart commitment of this subcommittee and Congress have we been able to keep Title XVI in place. However, perhaps it is time to ask the question, do we need to find a new approach to ensure a strong federal partnership. I think the answer is yes.

Let me cite a few reasons. First, the program has a ceiling on federal resources to be provided to any one project. This has not changed since the program was enacted almost fifteen years ago. Inflationary effects mean that the program is not providing the intended federal support. Second, the limitation serves as a disincentive to develop regional approaches to meet our water supply needs. Often groundwater storage is only feasible through regional partnerships. This is the case because basins often cross political boundaries. Regional projects are by nature large, but in the long run can serve to reduce costs by economies of scale. Third, the program lacks a formal mechanism by which we, as policymakers, can identify the need for assistance. Almost every large water infrastructure assistance program includes authority to conduct surveys on needs for infrastructure. While there may never be adequate revenues to meet identified infrastructure needs, at least we should have the knowledge of the need that requires future assistance. From this information, informed budgetary decisions can be formulated. Fourth, there is limited research provided for in Title XVI. In fact, only through the diligence of the WateReuse Research Foundation has this important activity been given heightened importance. Recent Foundation initiatives have leveraged federal support by more than $3 to every federal dollar. This suggests that we can improve on the technology that can generate new water supplies and thereby reduce the cost of producing such water. In turn this means the cost of storage and delivery can be reduced.

In closing, our water storage needs must address the realities of today’s world. Resources are constrained. Regional solutions must be developed that can serve to use our existing storage capabilities to their maximum benefit. This means that we will require flexibility in the way we use our existing infrastructure. And finally, we need to carefully examine the cost benefits of one form of storage compared with other forms based on the kind of resource (potable, reclaimed or desalinated supplies) that will be stored in the facility to ensure the storage facility matches the resource. This concludes my testimony. I would be pleased to respond to any questions that you or the other subcommittee members may have Mr. Chairman.