Mr. Kevin L. Wattier, P.E.
General Manager
Long Beach Water

Testimony before the Subcommittee on Water and Power
United States House of Representatives
May 24, 2005

Mr. Chairman, thank you for the invitation to speak before this distinguished Subcommittee today.

My name is Kevin Wattier and I am General Manager of Long Beach Water, an urban municipal water supply agency located in Long Beach, California. I am a licensed Professional Engineer and Grade 5 Water Treatment Operator.

My verbal testimony today will summarize the development and current status of the Long Beach Seawater Desalination Project; currently the largest Federally authorized project of its kind in the United States.

The Long Beach Desalination Project represents the Federal government's current investment in seawater desalination research and development. In full partnership with the United States Bureau of Reclamation, through work at a 300,000 gallon-per-day prototype desalination facility, we are attempting to optimize a unique and extremely innovative membrane technology, which was developed by engineers at our agency, that has indicated several advantages over traditional reverse osmosis methods when tested on a small scale.

Development of this research facility is also being made possible by generous assistance from the Los Angeles Department of Water & Power.

Additionally, together with the Bureau of Reclamation, we will construct an Under Ocean Floor Intake and Discharge Demonstration System, a project we believe is among the first of its kind in the world, that will effectively demonstrate an alternative to traditional open ocean intake and discharge practices.

The two parts of this large research and development project are aimed at fulfilling the Intent of The Congress, put forth by this Committee in its 1996 funding authorization for the Long Beach Desalination Project, which is to drive the cost of seawater desalination down through advancements in technology.

The work being done in Long Beach is consistent with the recommendations on pursuing seawater desalination contained in the Department of Interior's recent publication entitled, "Water 2025: Preventing Crises and Conflict in the West."

Today, I will give you a progress report on this project, in which you all are a partner.

By way of background, Long Beach Water currently meets the annual water demand for the 500,000 people living in and around the City of Long Beach through a broad resource portfolio, 42 percent of which is water imported into Southern California by the Metropolitan Water District via the State Water Project and the Colorado River Aqueduct; 38 percent is groundwater which is pumped and treated locally; and the final 20 percent of demand is met through conservation and use of recycled water.

Long Beach believes implementation and management of a diverse water supply portfolio is the most effective way to mitigate variable constraints inherent with imported and groundwater supplies.

By the beginning of the next decade, Long Beach Water's supply portfolio will resemble that of an experienced and successful investor's: smart, balanced and most importantly productive, while maximizing flexibility.

In Long Beach, the reliability of our future water supply rests on four pillars of critical investment: Conservation, Reclamation, Conjunctive Use and Seawater Desalination. Increased implementation of aggressive conservation programs, expansion of recycled water distribution systems, innovative and increased utilization of our groundwater basin and seawater desalination, as a package, for the foreseeable future, will mitigate variable constraints on imported and groundwater supplies, significantly strengthen water supply reliability and keep water rates low.

Seawater desalination has indeed emerged as one of several alternatives for stronger water supply reliability. In fact, we believe that early in the next decade, seawater desalination could help meet 10 percent of our customer's annual water demand. However, we believe significant opportunities to further reduce the operating costs of seawater desalination exist, making it an even more affordable option for water reliability. Long Beach has chosen to pursue these opportunities prior to moving forward on construction of a full-scale production facility.

Using a small 9,000 gallon-per-day pilot scale desalter since 2001, Long Beach Water has significantly reduced the overall energy requirement of seawater desalination using a relatively low-pressure, two-pass nanofiltration process, which has come to be known as the Long Beach Method. Testing at this scale has estimated this new technology to be 20 to 30 percent more energy efficient than reverse osmosis.

This technology, among other critical processes, will now be tested on a larger scale. A Federal funding agreement with the U.S. Bureau of Reclamation was signed in September of 2002, to design and construct a 300,000 gallon-per-day prototype seawater desalination research and development facility. This funding agreement provides 50 percent, or up to $20 million, of the total cost of the Long Beach Seawater Desalination Project. Total cost of design, construction and operations for this 300,000 gallon-per-day prototype facility is $8 million. To date, total Federal appropriations of $4 million have been received since FY'02.

The Long Beach Prototype Seawater Desalination Facility will be operational in August of this year. Once operational, Long Beach Water and Bureau of Reclamation officials will conduct 18-months of research. The research conducted at this facility will be among the most advanced seawater desalination research being undertaken anywhere at this time. With the data we gather, we will verify energy savings of the two-pass nanofiltration method, and optimize the process so that it can be easily duplicated.

Among the research being conducted in Long Beach will be a full-scale, side-by-side comparison of the two-pass nanofiltration and single-pass reverse osmosis methods of desalination, the only full-size, energy-use comparison of these two processes being conducted at this time. The Long Beach project will also test many of the newest Energy Recovery Devices being made available.

We will extend our efforts beyond optimization of the two-pass nanofiltration process and seek out innovative and affordable ways to develop other components of a full-scale desalination facility, while looking ahead at some of the common operational challenges faced by other desalination facilities around the world. Issues such as seawater intake, pre-treatment, and brine disposal affect both the two-pass nonofiltration and reverse osmosis processes.

In partnership with the Bureau of Reclamation, we are currently planning the design, construction and subsequent research activity of an Under Ocean Floor Intake and Discharge Demonstration System, among the first of its kind in the world. We believe this research will demonstrate an alternative and environmentally responsive method of seawater intake and brine discharge using slow sand filtration, and that existing beach sand under the ocean floor can be a viable pre-treatment method for seawater desalination.

Mr. Chairman, I would like to thank this Committee, The Congress and the Bureau of Reclamation for your continued confidence in the partnership that the Federal government has with Long Beach. We continue to strive to provide you with a tangible return on your investment in seawater desalination research and development. We look forward to sharing our research with this Committee and other stakeholders in the months ahead.

Along with my written testimony, I have submitted recent photographs of the Long Beach Prototype Desalination Facility and graphic renderings of the Under Ocean Floor Intake and Discharge Demonstration System.

I will be happy to answer any questions you might have.

Thank you.