

October 10, 2016

Ms. Carole D'Elia
Executive Director
Little Hoover Commission
925 L Street, Suite 805
Sacramento, CA 95814

**Subject: Written Testimony – October 27, 2016 public hearing on special districts
and climate change adaptation efforts**

Dear Ms. D'Elia:

The East Bay Municipal Utility District (EBMUD) appreciates the opportunity to submit the attached written testimony for the October 27, 2016 Little Hoover Commission public hearing on special districts and climate change adaptation efforts.

EBMUD is a water industry leader in addressing climate change. For EBMUD, climate change adaptation is something that is integrated into virtually every aspect of its operation. I look forward to participating in the hearing and sharing EBMUD's experience with climate change adaptation.

Sincerely,


Alexander R. Coate

ARC:MD:rc

Attachment

Written Testimony
of
Alexander R. Coate, General Manager of the East Bay Municipal Utility District

Little Hoover Commission
October 27, 2016 Public Hearing
Special Districts and Climate Change Adaptation Efforts

Good morning Chair Nava and Commissioners. I am Alexander R. Coate, General Manager for the East Bay Municipal Utility District (EBMUD). Thank you for this opportunity to share EBMUD's experience with climate change adaptation.

EBMUD Overview

East Bay Municipal Utility District is a public agency that provides drinking water service to 1.4 million customers and wastewater treatment service to about 680,000 customers for 20 cities and 15 unincorporated communities located in parts of Alameda and Contra Costa counties in the San Francisco East Bay Area. EBMUD is governed by a seven-member Board of Directors that is publicly elected from wards within the service area.

EBMUD was formed under the Municipal Utility District Act, passed by the California Legislature in 1921. Voters in the San Francisco East Bay Area created EBMUD in 1923 to provide water service. Water service is now provided within a 332-square mile area. In 1944, voters in six East Bay cities elected to form EBMUD's Special District No. 1 to treat wastewater from their jurisdictions. Wastewater treatment for those cities began in 1951 and was later expanded to include the Stege Sanitary District. Wastewater treatment service covers an 88-square mile area within EBMUD's water service area.

Portions of EBMUD's system originated in the late 1800's, when the City of Oakland and surrounding areas were incorporated. In 1916, the East Bay Water Company was incorporated to serve the growing East Bay population. East Bay Water Company was absorbed into the East Bay Municipal Utility District when it was formed in 1923.

EBMUD is a water industry leader in addressing climate change and has participated in the Environmental Protection Agency's Climate Ready Water Utility program for many years as well as a number of climate change-related research studies. EBMUD incorporates climate change mitigation and adaptation into its long-term planning, including its Strategic Plan, which is the blueprint for how EBMUD will respond to future challenges and changing priorities.

More specifically, EBMUD maintains a Climate Change Monitoring and Response Plan to inform planning efforts for future water supply, water quality, and infrastructure, and to support sound water and wastewater infrastructure investment decisions. Though both short- and long-term adaptation strategies are being implemented, EBMUD's planning and adaptation efforts will continue to adapt as the science of predicting exact impacts evolves. For EBMUD, climate change adaptation is not a stand-alone issue but rather something that is integrated into virtually every aspect of its operation.

Drinking Water System

EBMUD owns and operates its drinking water storage, transmission, treatment, and delivery system and holds water rights. EBMUD's primary source of water, about 90 percent, is the Mokelumne River which is located 90 miles east of EBMUD's East Bay service area. The remaining ten percent of supplies come from local runoff that is stored in reservoirs within EBMUD's service area.

EBMUD's extensive water supply infrastructure includes the Pardee and Camanche dams located on the Mokelumne River; three 90-mile above-ground aqueducts that transport water from its source to EBMUD's service area; five local terminal reservoirs; 170 potable water reservoirs; 140 pumping plants; six water treatment plants; 4,200 miles of distribution pipelines; more than 30,000 fire hydrants; and the Freeport Regional Water Project (Freeport). Hydroelectric power generation facilities are situated at both Pardee and Camanche dams to take advantage of the green power generating potential of water. These green power facilities generate more power than EBMUD consumes in an average year.

Recognizing that climate change can profoundly affect water supply reliability, EBMUD evaluates potential climate change effects as part of its long-term water supply planning and incorporates adaptation strategies into operations. Some of the climate change-related challenges for the water supply include increased frequency and intensity of droughts, reduced snow pack and changes in precipitation (less snow and more rain), and warmer air temperatures with potential consequences for water supply, water quality, power generation, flood control, and recreation facilities. Adaptation strategies include supplemental water supply projects, water treatment facility modifications, water conservation and recycling, and environmental stewardship.

Supplemental Water Supplies

EBMUD adjusts its water supply portfolio as the impacts of climate change manifest. During dry years and extended droughts EBMUD relies upon water held in storage and on supplemental supplies. EBMUD has identified a wide range of supplemental supply projects that are pursued in parallel to provide the flexibility necessary to adapt to variations and unpredictability of climate change, and to provide a margin of safety in case one or more projects is not able to produce the anticipated dry year yield. EBMUD's supplemental water supply projects in various stages of planning include water transfers, groundwater banking, desalination, and expansion of surface water storage opportunities.

- At a total cost of approximately \$1 billion, the Freeport Regional Water Project was specifically constructed to provide dry-year supplemental water supplies for EBMUD and to provide multi-regional benefits for the East Bay and Sacramento County. Freeport is jointly owned by EBMUD and Sacramento County. Water accessed through Freeport includes Central Valley Project water supplied to EBMUD via contract and water secured via transfers from water and irrigation districts on the American and Sacramento Rivers. When needed in dry years, water is conveyed to EBMUD through Freeport, located on the Sacramento River just south of downtown Sacramento, to EBMUD's aqueducts. EBMUD, in partnership with local interests, has invested over \$20 million to strengthen

the levees that protect EBMUD's water supply lifeline, the Mokelumne Aqueducts, from flooding.

- Groundwater can also provide a supplemental source of water. EBMUD is embarking on two groundwater banking approaches that are intended to provide dry year supplemental supplies. The Bayside Groundwater Project involves storing water in a deep underground aquifer located beneath a portion of EBMUD's service area for extraction and use in dry years. In addition, EBMUD and San Joaquin County are partnering on a groundwater banking demonstration project that would use surface water from EBMUD or others to recharge the aquifer underlying the eastern portion of San Joaquin County. The first phase of the project will include a five-year demonstration to test the feasibility of the project.
- EBMUD is also working with seven of the Bay Area's largest water suppliers to jointly explore projects to improve regional reliability via the Bay Area Regional Reliability project. In 2015, funding was secured from the United States Bureau of Reclamation to develop a drought contingency plan, which will evaluate a number of potential projects intended to improve regional water supply reliability. Examples of potential projects include regional drought response plans utilizing existing facilities from a variety of agencies, development of new regional water system interties that connect the systems of individual agencies, expansion of regional water storage, and development of a regional desalination plant.

Water Treatment Facility Modifications

Each different source of water supply has different water quality characteristics. Supplemental sources of water may require more treatment than EBMUD's Mokelumne supplies to remove suspended particulate matter, and/or reduce taste and smell compounds. Climate change may also necessitate increased treatment to address water quality issues arising from higher temperatures in rivers and reservoirs, such as higher concentrations of algae-based compounds.

- In order to provide greater operational flexibility to treat water from various sources, EBMUD is currently undertaking a \$22 million upgrade to one of its six water treatment plants and improvements of similar magnitude are scheduled at two other water treatment plants in the next few years. This is another example of an infrastructure-related climate change adaptation strategy.

Water Conservation and Recycled Water

EBMUD's well-established water conservation and recycled water programs reduce the demand for fresh water, thereby lessening the impact of climate change.

- EBMUD's water conservation program dates back to the 1970s and EBMUD customers have made conservation a way of life. Water use is at or below mid-1970's levels despite an increase in population of about 300,000. EBMUD's innovative water conservation program includes extensive customer outreach; community education; conservation assistance, including home audits; and incentives. EBMUD promotes cost-effective and

sustained water savings by testing water conservation products and focusing on those that best help customers save water, energy and money. Last year, EBMUD was one of the first water agencies to implement an excessive use ordinance to help reduce water use during the drought.

- EBMUD also has an aggressive leak detection program for its own water system that uses innovative technology to detect underground leaks. Finding leaks on EBMUD's system early not only saves valuable water but also reduces the cost of repairs and the amount of customer inconvenience resulting from main breaks.
- Though costly, recycled water is part of a comprehensive water supply portfolio that can help combat the effects of climate change. EBMUD's recycled water program dates back almost 40 years when EBMUD began using recycled water for its own processes and irrigation at its wastewater treatment plant facility. The recycled water program has steadily expanded to provide recycled water to a diverse array of customers for a variety of industrial and irrigation uses. For example, EBMUD operates one of the largest industrial water reuse projects in California for Chevron's Richmond Refinery. EBMUD also partners with other public agencies including the West County Wastewater District for Richmond projects, the City of San Leandro for service in Alameda and southern Oakland, and the Dublin San Ramon Services District in the San Ramon Valley.

Environmental Stewardship

EBMUD views the health of the environment as a critical aspect of water supply. EBMUD's mission is to manage the natural resources with which EBMUD is entrusted, to provide reliable, high quality water and wastewater services at fair and reasonable rates for the people of the East Bay; and to preserve and protect the environment for future generations.

- One of the best examples of EBMUD's environmental stewardship activities is EBMUD's work on the Mokelumne fishery. EBMUD owns a steelhead and salmon hatchery at the base of Camanche dam and is responsible for maintaining downstream flows on the Mokelumne River to optimize ecosystem habitats.
- EBMUD works collaboratively with regulatory agencies and various stakeholder groups to implement enhancement projects. For example, by partnering with UC Davis, U.S. Fish and Wildlife Service and the California Department of Fish and Wildlife, and landowners, EBMUD has enhanced more than one kilometer of spawning habitat that provides a high-quality area for adult salmon to build their nests.
- In dry years, EBMUD works to preserve as much cold water as possible in Pardee and Camanche reservoirs for release during the fall salmon run in the Mokelumne River. The stored cold water is released in pulse flows that act as waves of water that guide fish home. Releasing pulse flows in dry years is another example of a climate change adaptation strategy. This is no easy feat as much work goes into balancing reservoir operations to provide drinking water supplies, manage release water temperatures, produce hydroelectric power, and control floods.

- EBMUD is also working with others through the Upper Mokelumne River Water Authority, a joint powers authority, to address climate change impacts in the Mokelumne watershed. This includes efforts with the U.S. Forest Service and the U.S. Bureau of Land Management to implement forest health initiatives on federal lands, such as forest thinning, road removal, meadow restoration and other actions that together reduce the risk of catastrophic wildfire and make the forest more resilient to drought and increased temperature.

Wastewater Treatment

EBMUD's wastewater treatment system serves about 680,000 people in nine cities in the East Bay. Wastewater collected from homes and businesses through privately-owned sewer laterals feed into a network of city sewers that flow into EBMUD's interceptors (large pipes). These interceptors carry the wastewater to EBMUD's wastewater treatment plant located in Oakland. Here, wastewater is treated to established regulatory standards prior to discharge into San Francisco Bay, about one mile from the shoreline.

Infrastructure associated with EBMUD's wastewater treatment operation includes a main wastewater treatment plant; 29 miles of gravity interceptor sewers; 15 pumping stations; 8 miles of force mains; and 3 wet weather facilities. EBMUD's wastewater treatment plant is currently more than 8 feet above mean sea level and is protected by adjacent freeways and development in the area between the facility and the shoreline. Climate challenges that could affect EBMUD's wastewater operations include increasing or decreasing precipitation and sea level rise.

- During and after heavy storms, rain and groundwater enter underground sewer pipes through cracks, increasing the volume of water in the system, and eventually causing overflows. This is called "infiltration and inflow" and is a common occurrence in cities across the country with older infrastructure. Climate change is expected to impact the level of infiltration and inflow via the frequency and magnitude of more extreme wet weather storm events and rising groundwater levels due to sea level rise. Starting in 1988, EBMUD built three wet weather facilities to help address the problem of infiltration and inflow. Recently in conjunction with a consent decree, EBMUD created and has implemented a private sewer lateral ordinance to further address these issues. This ordinance requires property owners to have their private laterals inspected if they buy or sell a property, build or remodel, or increase the size of their water meter. If the lateral is found to be leaking or damaged, the lateral must be repaired or replaced.
- EBMUD has assessed potential climate change impacts and determined there is long-term potential for impacts to the wastewater treatment plant and remote pumping stations from sea level rise. EBMUD participated in a regional working group for the Adapting to Rising Tides Project, a joint effort of the Bay Conservation and Development Commission and the National Oceanic and Atmospheric Administration, to conduct a vulnerability and risk assessment and develop adaptation strategies to address rising sea levels due to climate change. The Vulnerability and Risk Assessment Report details the impacts of sea level rise on key EBMUD assets, including the wastewater treatment plant. These impacts will be addressed through inter-agency coordination (e.g., Caltrans,

City of Emeryville). EBMUD continues to participate in efforts to further define the vulnerabilities, to better understand and define both the magnitude and potential timeframe when impacts may occur, and develop regional, multi-agency adaptation strategies.

- In 2012, EBMUD became the first wastewater treatment plant in North America to produce more renewable energy onsite than is needed to run the facility. EBMUD's wastewater treatment plant converts biodegradable wastes - including sewage, food scraps, restaurant grease, winery waste, and poultry farm waste - into renewable energy to power the wastewater treatment plant. This monumental accomplishment was made possible when EBMUD installed an energy-efficient, low-emission gas turbine in 2011. EBMUD now sells excess renewable energy back to the electrical grid to cut fossil fuel use and greenhouse gas emissions, and provide savings for EBMUD ratepayers.

Finance

EBMUD's primary source of revenue comes from rates charged to customers for drinking water and wastewater treatment services. In EBMUD's most recent budget 84 percent of water operating revenues come from drinking water charges and 72 percent of wastewater system operating revenues come from wastewater treatment and wet weather charges. EBMUD also receives revenues from power sales, reimbursements, recreation fees, trucked waste tipping fees, interest income, capacity fees, subsidies for Build America Bonds, and property taxes. EBMUD's property tax revenues fund non-enterprise functions, such as fire suppression.

EBMUD funds the majority of its long-term infrastructure investments with debt. Over each five-year planning period, up to 65 percent of capital expenditures are funded with debt, with the remaining 35 percent funded using a combination of operating revenues and capital reserves.

EBMUD's reserve policy is to maintain operating and self-insurance reserves necessary to provide ongoing working capital while maintaining a reasonable balance between debt and current revenue financing capital projects. Adequate reserves and sound financial policies promote EBMUD's good standing in the capital markets; provide flexibility; avoid potential restrictive debt covenants; maintain markets for EBMUD debt; and facilitate future financing of capital projects at reasonable costs. Maintaining the balance between current funding sources and debt financing is critical to retaining EBMUD's financial flexibility which allows EBMUD to use a variety of revenue or debt-financing alternatives, including issuing low-cost variable rate and other revenue supported debt.

With regard to climate change adaptation, two types of reserves can play a role – working capital reserves and the rate stabilization fund. These are examples of unrestricted operating reserves.

- As described above working capital reserves are used in combination with debt and rate revenue to fund infrastructure investment. Examples of infrastructure projects that contribute to climate change adaptation include the Freeport Regional Water Project, levee strengthening, drinking water treatment plant upgrades, and recycled water projects.

- The rate stabilization fund is used to backstop revenue gaps when water sales are down. This can occur during prolonged drought periods and the use of this fund helps stabilize rates for customers over the long-term while enabling the utility to continue to operate and maintain its infrastructure.

Customer Engagement

EBMUD utilizes a full spectrum of tools to engage its customers and increasingly utilizes “push” communications to stimulate interest and dialogue. EBMUD uses a variety of tools to interact with customers and other stakeholders. These include:

- EBMUD’s website which is continually updated with current information, and dedicated social media accounts;
- Customer bill insert publications and informational mailers;
- Billboards, purchased advertising space in newspapers and other spaces, and news media coverage;
- Public presentations at various venues in each ward within the service area, public workshops, and Board meetings;
- Educational events at various locations including programs in classrooms with presentations and interactive activities with K-12 students; and
- Facility tours.

The discussion of climate change and adaptation features in many of EBMUD’s customer interactions particularly those on water supply, infrastructure, rates, and financing. Communications focus on the benefit and need for investment, with climate change adaptation not a stand-alone issue but one of the many factors EBMUD considers when setting priorities.

Recommendations

Climate change continues to pose many threats to the water and wastewater industry, and coastal agencies in particular face challenges associated with rises in sea level. Although there is uncertainty regarding the precise timing and severity of climate change impacts, EBMUD assesses climate change as part of its future planning so it can continue to provide reliable, high quality water and wastewater service to its customers.

- However there remains great uncertainty in the magnitude of future climate change. California hydrology is already tremendously variable and so water agencies have already planned for relatively short intense droughts like the 1976-1977 drought. This recent drought has shown that longer, more frequent droughts may be on the horizon. The state could play a role in helping address this uncertainty through targeted research into climate change that is specific to California.
- Continued financial, operational, and policy flexibility is necessary to allow for local decision making that reflects local conditions and needs. State mandates that ignore the complexities of water management and infrastructure management and planning can do little more than raise costs and interfere with a water or wastewater agency’s ability to deliver reliable services to ratepayers.

- Where regional interests are aligned, local agencies currently have the authority to work together to broaden their potential responses to climate change. These regional partnerships can take many forms and often do not fit in the rigid mold of an integrated regional water management planning group. A good example is the Bay Area Regional Reliability effort that is assembled via a Memorandum and Agreement and leverages the common interests of numerous agencies. Policies that allow for regional flexibility while not inhibiting independent actions of individual agencies will result in more timely and durable climate change adaptations.

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